

7498
T A B L E S

OF

T I M E;

WHEREBY

The *Day* of the *Month*,
either *New* or *Old*
Stile;
Day of the *Week*;
Rising of the *Sun*;
Time of the *SUN*'s En-
trance into the *Equi-*
noxes and *Solstices*;
Movable Feasts, particu-
larly true Time of
EASTER;
Fix'd *FEASTS*;

Remarkable *Times*;
MOON's *Ages*;
ECLIPSES, &c. may be
found for any Time
past, or to come, with-
out the Help of *Astro-*
nomical Tables.
N. B. There are 500
Years, viz. 250
past, and 250 to come,
already calculated.

By *GAMALIEL SMETHURST*.

*To ask or search I blame thee not; for Heav'n
Is as the Book of God before thee set:
Wherein to read his wond'rous Works and learn
His Seasons, Hours, or Days, or Months, or Years.*

M A N C H E S T E R.

Printed by *R. Whitworth*, Bookseller; and sold by
Dodley, at *Tully's-Head*, in *Pall-Mall*, London.

TABLES

OF

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THE PREFACE.



THE following Pages, which were the Result of Amusement, are not intended for those who make Astronomy their principal Study, but to teach such as do not, so much of it as is necessary in Chronology, and its Companion, History; to give them a regular Series of Time, the whole Length of the *Julian Period*, thereby to distinguish each Year, and apply to it any of its Chronological Characters.

iv The PREFACE.

THIS Work may be of great Service to young Adventurers, in the Sciences of Astronomy and Chronology, by letting them gain their Point, (tho' rudely,) and thereby encourage them to make it more exact by Astronomical Equations.

I have avoided all Algebraical Contraction, thinking it would be going about to solve a less Difficulty by a greater, to most Readers, and not agreeable to the Age of Life these Tables are intended for, they being an Introduction only.

MY Expectations are not great: I publish to gratify a laudable Ambition of being in any Degree serviceable to the World; and if the following Tables help to clear up any dark Point in History; to excite any one to make a Progress in Astronomy or Chronology; or to fill up those vacant Hours of our Youths, with

some

The P R E F A C E.

some profitable Entertainment, which might otherwise have been spent much worse, I shall have my Desire.



T H E



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O F T H E

JULIAN Period

A N D

JULIAN Year.

TH E following Tables are suited to the *Julian* Period of Time, (invented by *Scaliger*) so call'd because it is compos'd of *Julian* Years.

The *Julian* Year consists of 365 Days, 6 Hours; the odd Hours added together amount every 4th Year to a Day, for which Reason 3 Years successively are each compos'd of 365 Days, and the 4th of 366 Days.

This Form of Years was first settled by *Julius Cæsar*, from whom 'tis called *Julian*, 45 Years before Christ, and by him order'd to be observ'd throughout the whole *Roman* Empire. *Britain*, being then a *Roman* Province, received this Account, which it has ever since kept, and is commonly call'd *Old Stile*.

The *Julian* Period consists of 7980 of these Years, arising from the Multiplication of 3 accepted Cycles, which are still us'd. These are the Cycle of the Sun, 28 multiply'd by the Golden Number, or Cycle of the Moon 19, gives 532, or the *Victorian* Period; which multiply'd

A

by

(2)

by the *Roman* Indiction 15, makes 7980, the Number of Years in the *Julian* Period.

Cycle of the Sun	28
Golden Number	19
	252
	28
Dionysian or Victorian Period	532
Roman Indiction	15
	2660
	532
Julian Period	7980

This Period was invented to fix a true Standard of Time, and measure from one Epocha to another. The Beginning of which, that is when the Cycle of the Sun was 1, the Golden Number 1, and the Roman Indiction 1, was suppos'd before the Creation of the World, according to Archbishop *Usher*, 710 Years, before the vulgar Birth of Christ 4713 Years; so that adding 4713 to the Year of our Lord, you will have the Year of the *Julian* Period at any Time, and from any given Year in the *Julian* Period subtracting 4713, the Remainder shews the Year of Christ.

EXAMPLE I.

What Year of the *Julian* Period is the Year of Christ 1749?

Year of our Lord	1749
Add	4713
Year of the <i>Julian</i> Period sought	6462

EXAMPLE

(3)

EXAMPLE II.

What Year of our Lord was the 4714th Year of the
Julian Period?

Year of the <i>Julian Period</i>	4714
Subtract	4713

Year of Christ

1

The Remainder is one, which shews you that the
4714th Year of the *Julian Period* was the first Year of
Christ.

EXAMPLE III.

What Year of the *Julian Period* was that, when *Julius*
Cæsar reform'd the Calendar, being 45 Years before
Christ?

First Year of Christ was the Year	}	4714
of the <i>Julian Period</i>		
From which take		45

Year of the *Julian Period* required

4669

EXAMPLE IV.

It is required how many Years before Christ was the
Year of the *Julian Period* 3938?

First Year of Christ was the Year	}	4714
of the <i>Julian Period</i>		
From which take		3938

Years before Christ

776

This was the Year the Olympiads began amongst the
Greeks.

(4)

EXAMPLE V.

What Year of the *Julian* Period will the Year of our Lord 2000 be?

Year of our Lord	2000
Add	4713
Year of the <i>Julian</i> Period sought	6713

Of the *Cycles* which constitute this Period.

Of the CYCLE of the SUN, with the DOMINICAL LETTERS.

THE Cycle of the Sun is a Revolution of 28 *Julian* Years, caus'd by the so often changing the Dominical or Sunday Letters. The Dominical Letters, or Marks for the Beginning of the Year, are as follow.

When Sunday is the first Day of the Year it is	A.
When Sunday is the second Day of the Year it is	B.
Sunday 3d Day of the Year	C.
Sunday 4th Day of the Year	D.
Sunday 5th Day of the Year	E.
Sunday 6th Day of the Year	F.
Sunday 7th Day of the Year	G.

So when the Dominical Letter is G, Sunday is the 7th Day of the Year, and of Course the First must be Monday.

Monday.	Tuesf.	Wed.	Thur.	Fri.	Sat.	Sunday.
G	F	E	D	C	B	A
7th	6th	5th	4th	3d	2d	1st.

The Year, consisting of 365 Days, which divided by 7, the Number of Days in a Week, makes a Remainder of one. This changeth the Dominical Letters 7 Times. Then to every 4th Year, which is called Leap Year, a Day being added for the 6 Hours, which the *Julian* Year

Year accounted more than 365 Days, causes the Alteration of the 7 Dominical Letters 4 Times, and that makes 28, the Number of Years in the Solar Cycle as may be seen in Table I. with their Dominical Letters in their proper Order.

When there are 2 Dominical Letters it is then Leap Year, the first of which is the Dominical Letter for *January* and *February*, and the other for the rest of the Year.

EXAMPLE VI.

Suppose the Cycle of the Sun 22. I want to know the Dominical Letter. Look in Table I. for 22, and overagainst it you have A which is the Dominical Letter sought.

Of the Golden Number, or Cycle of the Moon, with the EPOCH.

THE Golden Number is a Revolution of 19 Years, after which Time the Lunar and Solar Years are found to set out nearly together again. This Cycle was invented by *Meton*, an Athenian, and is often called the Metonic Cycle. The Epoch is the Difference betwixt the Solar and Lunar Years; for as the Solar Year consists of 365 Days, and 12 Lunar Months, reckoning their mean Quantity at 29 Days and a Half, make only 354, there remains 11 Days, which makes the Moon, at the End of the Year, eleven Days more towards another Month than it was at the Beginning of the Year. This Surplus is call'd the Epoch; when it amounts to above 30, they cast 30 off for a Month, and reckon the Remainder the Epoch, as may be seen in Table II.

EXAMPLE VII.

The Golden Number given is 2, to find it's corresponding Epoch.

A 3

Look

(6)

Look in Table II. for 2, and even with it you have 22, which is the Epact for that Golden Number.

Of the *Roman Indiction.*

THE Roman Indiction is a System of 15 Julian Years, by which the Time of certain Payments were known to the Romans. As they recur in Order throughout the *Julian Period*, and have no other Mark than their proper Number, they need no further Explanation.

To find the *Cycle of the SUN*, and the *Dominical Letter.*

R U L E.

DIVIDE the Year of the *Julian Period* by 28, (the Number of Years in the Solar Cycle) and the Remainder will be the Cycle of the Sun.—If nothing remains, the Cycle of the Sun is then 28, against which in the first Table you have the corresponding Dominical Letters.

EXAMPLE VIII.

What is the Cycle of the Sun and Dominical Letter, for the Year of Christ 1749.

Find what Year of the *Julian Period* it is by adding

Year of Christ	1749
Add	4713

Corresponding Year of the <i>Julian Period</i>	6462
--	------

Divide

(7)

Divide the Year of the Julian Period by 28.

28) 6462 (230

56

86

84

Cycle of the Sun

22

The Quotient shews you there has been 230 Revolutions of the Solar Cycle since the Commencement of the Julian Period, and the Remainder points out the Cycle of the Sun to be 22. Even with this in Table first, is the Dominical Letter A.

EXAMPLE IX.

What were the Cycle of the Sun and the Dominical Letters for the Year of the Julian Period 4713.

Divide by 28 28) 4713 (168

28

191

168

233

224

Cycle of the Sun

9

The Remainder is 9, which shews the Cycle of the Sun, and in the First Table overagainst this Cycle you will find the Dominical Letters to be D C.

This being the Year before Christ's Nativity, you may know any Years since by adding this Cycle 9 to the given Year of Christ; and dividing by 28, the Remainder is the Cycle of the Sun.

EXAMPLE X.

(8)

EXAMPLE X.

The Cycle of the Sun is requir'd for the Year of Christ 1749.

To the Year given, add the Cycle that was elaps'd at his Birth.

Year of our Lord 1749
Cycle elaps'd at his Birth 9

28) 1758 (62

168

78

56

Cycle of the Sun 22

Dividing by 28, the Remainder points out the Cycle of the Sun to be 22, overagainst which in Table First, is the Dominical Letter A, the same as Example VIII.

EXAMPLE XI.

The Cycle of the Sun and Dominical Letters are requir'd for the Year that *Julius Caesar* reform'd the Calendar, being 45 Years before Christ.

Find the Year of the *Julian* Period.

First Year of Christ was the Year } 4714
of the *Julian* Period. }
From which take 45

Year of the *Julian* Period sought 4669

Divide the Year of the *Julian* Period by 28,

28) 4669 (166

28

186

168

189

168

Cycle of the Sun

21

In

(9)

In Table 1st even with the Cycle of the Sun 21 are the Dominical Letters C B.

EXAMPLE XII.

The Cycle of the Sun and Dominical Letters are required for the Year that the Olympiads commenc'd, being 776 Years before Christ.

Find the Year of the *Julian* Period.

First Year of Christ was the Year } 4714
of the *Julian* Period. }
From which take 776

Corresponding Year of the *Julian* Period 3938

Divide the Year of the *Julian* Period by 28.

28)3938(140

28

113

112

Cycle of the Sun 18

The Cycle of the Sun is 18, and the Dominical Letter by Table I. is F.

EXAMPLE XIII.

The Cycle of the Sun and Dominical Letters are requir'd for the first Year of Christ, being the Year of the *Julian* Period 4714.

Divide the Year of the *Julian* Period by 28.

28)4714(168

28

191

168

234

224

Cycle of the Sun

10

The

The Cycle of the Sun is 10, and the Dominical Letter by Table First is B.

To find the GOLDEN NUMBER and E P A C T.

R U L E.

DIVIDE the given Year of the *Julian* Period by 19 (the Quantity of Years in the Golden Number) and the Remainder will be the Golden Number; if nothing remains the Golden Number is then 19, over-against which in Table II. you have the Epact.

E X A M P L E XIV.

The Golden Number and Epact is requir'd for the Year of our Lord 1749.

Find the Year of the *Julian* Period.

Year of Christ

1749

Years of the *Julian* Period elaps'd
at Christ's Birth

4713

Year of the *Julian* Period sought

6462

Divide the Year of the *Julian* Period by 19.

19)6462(340

57

76

76

Golden Number

2

The Remainder is 2, which is the Golden Number required; over-against this Golden Number in Table II. you have the Epact 22.

E X A M P L E

EXAMPLE XV.

The Golden Number and Epact are requir'd for the Year
of the *Julian* Period 4713.

$$19)4713(248$$

 38

91

 76

153

 152

Golden Number 1

Dividing the Year of the *JULIAN* Period by 19, the
Remainder is one, which is the Golden Number sought,
and the Epact according to Table II. is 11.

The Golden Number being found to be 1, the Year be-
fore Christ, add 1 to any Years since, and divide the
Sum by 19, the Remainder gives you the Golden Number.

EXAMPLE XVI.

The Golden Number is sought for the Year of our
Lord 1937.

Add 1 and divide by 19.

Year of our Lord given 1937

Add 1

$$19)1938(102$$

 19

38

 38

Golden Number 19. 0

The Remainder is nothing, the Golden Number must
then be 19, and the Epact for that Year 29.

EXAMPLE

EXAMPLE XVII.

The Golden Number is requir'd for the Year before Christ 776.

First Year of Christ	4714
Years before Christ subtract	<u>776</u>

Year of the Julian Period	<u>3938</u>
---------------------------	-------------

Divide the Year of the JULIAN Period by 19.

19)3938(207

38

138

133

Golden Number

5

EXAMPLE XVIII.

The Golden Number is requir'd for the first Year of our Lord

Year of our Lord

Years of the JULIAN Period elaps'd at } 4713
Christ's Birth.

4714

Divide the Year of the JULIAN Period by 19.

19)4714(248

38

91

76

154

152

Golden Number

2

To

To find the ROMAN INDICTION.

R U L E.

DIVIDE the given Year of the *Julian* Period by 15, and the Remainder is the *Roman* Indiction; if nothing remains the *Roman* Indiction is then 15.

E X A M P L E XIX.

What is the *Roman* Indiction for the Year of our Lord 1749.

Add 4713 to bring it into the *Julian* Period.

Year of Christ.	1749
Add	4713
Year of the <i>Julian</i> Period	6462

Divide the Year of the *Julian* Period by 15.

15)6462(430

60

46

45

ROMAN Indiction 12

E X A M P L E XX.

The *Roman* Indiction is requir'd for the Year before Christ 45.

Find the Year of the *Julian* Period

First Year of Christ	4714
From which take	45

Year of the <i>Julian</i> Period	4669

To B

Divide

(14)

Divide the Year of the *Julian* Period by 15.

15)4669(311

45

16

15

19

15

Roman Indiction

4

EXAMPLE XXI.

The *Roman* Indiction is sought for the Year of the *Julian* Period 4713.

15)4713(314

45

21

15

63

60

Roman Indiction

3

EXAMPLE XXII.

As the *Roman* Indiction by the last Example was found to be 3, the Year before Christ, it is requir'd for the Year of Christ 1749.

Year of our Lord given

1749

Roman Indiction elaps'd at his Birth

3

1752

Divide

(15)

Divide this Addition by 15

15) 1752 (116

15

25

15

102

90

Roman Indiction

12

This is further prov'd by Example XIX taken from the Beginning of the *Julian* Period,

EXAMPLE XXII.

The *Roman* Indiction is requir'd for the Year of the *Julian* Period 4714.

Divide the given Year by 15.

15) 4714 (314

45

21

15

64

60

Roman Indiction

4

By the foregoing Examples the first Year of Christ being the 4714th Year of the *Julian* Period, had the following Characters.

Cycle of the Sun 10

Dominical Letter B.

Golden Number 2

Roman Indiction 4.

It's pity but the Use of these Cycles with the *Julian* Period, had been known to former Historians, for if they had mark'd the Year with the 3 Cycles, it would have determin'd the Time past Dispute, for no 2 Years in the *Julian* Period can have the same 3 Cycles.

B 2

The

The *Cycle* of the *Sun*, the *Golden Number*, and the *Roman Indiction* being known, to find the corresponding Year in the *Julian Period*.

R U L E.

TAKE out that Sum from Table III. that is even with the Number of the Cycle of the Sun, as likewise, that even with the Golden Number; add these together, and divide the Product by 15, the Remainder substract from the given Indiction (adding 15 to the given Indiction if the Substraction can't be done without) then take that Sum in the Table under the Title Indiction, that is even with the Number of this last Remainder, adding it to the 2 Sums took out before, and the Product gives you the Year of the *Julian Period* sought. If such Sum exceeds 7980, then 7980 is to be substracted from it, and the Remainder will be the Year of the *Julian Period* requir'd.

E X A M P L E XXIV.

The Cycle of the Sun given is 20. Golden Number 19. Roman Indiction 10. to find that Year in the *Julian Period*.

Even with the Cycle of the Sun Number 20 }
in the Table is } 76

Even with the Golden Number 19 in the }
third Column is } 532

Which makes

608

Divide

(17)

Divide this Sum by 15.

15)608(40

60

8

The Remainder you'll find 8, which subtracted from the *Roman* Indiction given, there remains 2.

Roman Indiction given

10

Remainder subtract

8

2

Even with this Number 2, in the Column }
Indiction you find } 5852

To which add the 2 Sums took out before 608

Year of the *Julian* Period sought 6460

The Year of the *Julian* Period requir'd, you find to be 6460, for no other Year in the *Julian* Period can have these 3 Cycles.

Proof,

28)6460(230

56

86

84

19)6460(340

57

76

76

15)6460(430

60

46

45

Cycle of }
the Sun } 20

Golden }
Number } 19

Roman }
Indiction } 10

EXAMPLE XXV.

What Year of Christ has the following Cycles. Cycle of the Sun 23. Golden Number 3. Roman Indiction 13.

Even with the Cycle of the Sun 23, is 247

Even with the Golden Number 3 is 364

611

B 3

Divide

(18)

Divide this by 15.

15)611(40

60

Remainder

11

Subtract the Remainder from the given Indiction 13
Remainder

11

Last Remainder

2

Even with this last Remainder 2 in the Co-
lumn Indiction is } 5852
2 Sums took out before 611

Year of the *Julian* Period 6463

Year of the *Julian* Period found 6463

Years elaps'd at Christ's Birth subtract 4713

Year of our Lord requir'd 1750

The next Example has all the Variety the Rule can have.

EXAMPLE XXVI.

The Year of the *Julian* Period is requir'd for the
Cycle of the Sun 16. Golden Number 16. Roman In-
diction 1

Even with the Cycle of the Sun 16 is 380

Even with the Golden Number 16 is 168

548

Divide this Sum by 15.

15)548(36

45

98

90

Remainder

8

As

As this Remainder is more than the *Roman* Indiction given, a whole Cycle must be added to the given Indiction, to make the Substraction possible.

Given Indiction	1
A whole Cycle	15
	16
Remainder substract	8
Last Remainder	8
Even with the last Remainder 8 is	7448
The 2 Sums took out before	548
	7996

This being more than the *Julian* Period, substract the *Julian* Period from it.

Sum found	7996
<i>Julian</i> Period substract	7980
Year of the <i>Julian</i> Period sought	16

Of the CALENDAR.

THE Calendar is a complete *Julian* Year with it's Divisions of Months, Weeks, Days, remarkable Times, public Feasts, &c. The Calendar took it's Name from the Romans calling the first Day of the Month the Kalends of that Month. I have chose *Smart's* Calendar, as it's fitted for any Year in the *Julian* Period. The Months, with their Number of Days, are set down in their proper Order; in each Month are 9 Columns, 7 of which have a Dominical Letter at the Top, and the Days of the Week, down the Columns answering to those Dominical Letters; in the 8th Column are the Days of the Month; in the last Column are the remarkable Days, fixed Feasts, with the Time of Sun's rising for this present Age, &c.

The

The Use of the CALENDAR.

THE great Use of this Calendar is, that we can apply to it all chronological Characters, at all Times; for by finding the Dominical Letter for any Year, and following those Columns in the Calendar that hath the same Dominical Letter at the Top, you will have the Day of Month and Day of the Week throughout that Year.

EXAMPLE XXVII.

What Day of the Week was the first of *January* in the Year of Christ 300.

Find the Year of the *Julian* Period.

Year of our Lord given 300

Years of the *Julian* Period elaps'd at } 4713
 Christ's Birth add, }

Year of the *Julian* Period 5013

Find the Cycle of the Sun by dividing the Year of the *Julian* Period by 28.

28)5013(179

28

221

196

253

252

Cycle of the Sun 1

The Cycle of the Sun is 1, and the Dominical Letters according to Table I. are G. F.

The first of these Dominical Letters serves for *January* and *February*, the other for the rest of the Year.

Enter

Enter the Calendar, and in the Month of *January* in the Column G you'll find m for Monday to be even with the first; the first of *February* in the Column G, you'll find th for Thursday.

Enter *March* with F, and even with the First you'll find fr for Friday. Even with the first of *April* you'll find m for Monday. Even with the first of *May* in the Column F, you'll find w for Wednesday, &c.

EXAMPLE XXVIII.

What Day of the Week was the 10th of JULY, in the Year of the JULIAN Period 4750.

Find the Cycle of the Sun by dividing by 28.

$$28)4750(169$$

$$28$$

$$195$$

$$168$$

$$270$$

$$252$$

Cycle of the Sun 18

Over-against the Cycle of the Sun 18 in the first Table, is the Dominical Letter F.

Look in the Calendar for the Month JULY, and even with the 10th in the Column F, you'll find w for Wednesday, the Day requir'd.

EXAMPLE XXIX.

What Day of the Month was the first Sunday after the 10th of *April* in the Year of our Lord 1666.

Find the Year of the JULIAN Period.

Year of Christ given 1666

Years of the JULIAN Period elaps'd } 4713
at Christ's Birth

Year of the JULIAN Period requir'd 6379

Find

(22)

Find the Cycle of the Sun by dividing by 28.

28)6379(227

56

77

56

219

196

Cycle of the Sun 23

The Solar Cycle is 23 and the corresponding Dominical Letter by Table 1st is G.

Look in the Calendar for the Month of April, and in the Column G you'll find tu for Tuesday, to be even with the 10th, the Sunday following was the 15th.

EXAMPLE XXX.

What Day of the Week will Christmas Day happen on in the Year of our Lord 2200.

Find the Year of the *Julian* Period.

Year of our Lord given 2200

Years of the *Julian* Period elaps'd } 4713
at Christ's Birth

Year of the *Julian* Period 6913

Find the Solar Cycle.

28)6913(246

56

131

112

193

168

Cycle of the Sun 25

The

(23)

The Solar Cycle being 25, the Dominical Letters by Table the 1st are E, D.

Enter the Month *December* in the Calendar with D, and you'll find fr. for Friday to be even with the 25th, which will be Christmas Day that Year.

EXAMPLE XXXI.

What Day of the Month was the first Sunday in March, in the Year of the *Julian* Period 4712.

Find the Cycle of the Sun.

28)4712(168

28

191

168

232

224

Solar Cycle 8

In Table 1st over-against 8, is the Dominical Letter E, entering *March* in the Calendar in the Column E, you'll find the first S for Sunday to be even with the second Day of the Month.

To find EASTER, according to the Table that our Church follows.

R U L E.

FIND the Golden Number, as likewise the Dominical Letter; then look in Table 4th for the Dominical Letter, and in that Column, even with the Golden Number, you have the Time of Easter Day sought.

Note: When there are two Dominical Letters the latter is us'd.

EXAMPLE

EXAMPLE XXXII.

What Time did Easter happen in the Year of Christ 326, being the Year after the Council of *Nice* had settled it.

Find the Year of the Julian Period.

Year of Christ given 326

Years of the *Julian* Period elaps'd at } 4713
Christ's Birth

Year of the *JULIAN* Period 5039

Find the Cycle of the Sun by dividing the Year of the *Julian* Period by 28.

28)5039)179

28

223

196

279

252

Solar Cycle

27

In Table 1st over-against the Cycle of the Sun 27 is the Dominical Letter B.

Then find the Golden Number by dividing the Year of the *JULIAN* Period by 19.

19)5039)265

38

123

114

99

95

Golden Number

4

Look

(25)

Look in Table 4th for the Dominical Letter B, and in that Column even with the Golden Number 4 you have April the 3d for Easter Sunday that Year.

EXAMPLE XXXIII.

Easter Sunday is required for the Year of our Lord 1749.

Find the Year of the JULIAN Period.

Year of Christ given	1749
Years add	4713

Year of the JULIAN Period	6462

Find the Cycle of the Sun by dividing the Julian Period by 28.

28)6462(230

56

86

84

Cycle of the Sun. 22

In Table 1st. even with the Cycle of the Sun 22, is the Dominical Letter A.

Find the Golden Number by dividing the Year of the Julian Period by 19.

19)6462(340

57

76

76

Golden Number 2

In Table IV. in the Column A, even with the Golden Number 2, is March the 26th for Easter Sunday.

EXAMPLE XXXII.

What Time did Easter happen in the Year of Christ 326, being the Year after the Council of *Nice* had settled it.

Find the Year of the Julian Period.

Year of Christ given 326

Years of the *Julian* Period elaps'd at } 4713
Christ's Birth

Year of the JULIAN Period 5039

Find the Cycle of the Sun by dividing the Year of the *Julian* Period by 28.

28)5039)179

28

223

196

279

252

Solar Cycle

27

In Table 1st over-against the Cycle of the Sun 27 is the Dominical Letter B.

Then find the Golden Number by dividing the Year of the JULIAN Period by 19.

19)5039)265

38

123

114

99

95

Golden Number

4

Look

(25)

Look in Table 4th for the Dominical Letter B, and in that Column even with the Golden Number 4 you have April the 3d for Easter Sunday that Year.

E X A M P L E XXXIII.

Easter Sunday is required for the Year of our Lord 1749.
Find the Year of the JULIAN Period.

Year of Christ given	1749
Years add	4713

Year of the JULIAN Period	6462
---------------------------	------

Find the Cycle of the Sun by dividing the Julian Period by 28.

28)6462(230

56

86

84

Cycle of the Sun. 22

In Table 1st. even with the Cycle of the Sun 22, is the Dominical Letter A.

Find the Golden Number by dividing the Year of the Julian Period by 19.

19)6462(340

57

76

76

Golden Number 2

In Table IV. in the Column A, even with the Golden Number 2, is March the 26th for Easter Sunday.

To find the MOVEABLE FEASTS.

R U L E.

FIND the Time of *Easter*, and in the Table of Moveable Feasts; at the End of the Calendar you have the Time of all the Feasts which depend upon it.

EXAMPLE XXXIV.

What Time did Shrovetide happen in the Year of Christ
1311.

Find the *Julian* Period.

Year of Christ given	1311
Years of the <i>Julian</i> Period add	4713
Corresponding Year of the <i>Julian</i> Period	6024

Find the Cycle of the Sun, by dividing the Year of the
Julian Period by 28.

$$28 \overline{) 6024} 215$$

56

42

28

144

140

Solar Cycle

4

The Solar Cycle being 4, the Dominical Letter by Table, 1st, is C.

Find

(27)

Find the Golden Number by dividing the Year of the
Julian Period by 19.

19) 6024 (317

—

57

—

32

19

—

134

133

—

Golden Number

1

Enter Table 4th with the Dominical Letter C, and in that Column, even with the Golden Number 1, you have *April 11th.* for *Easter Sunday.*

In the Table of Moveable Feasts, even with *Easter Day* of *April 11th.* you find *Ash Wednesday*, which is *Shrove Week*, to fall on *February 24th.*

EXAMPLE XXXV.

What Time will *Whitsunday* happen, in the Year of our Lord 2142.

Find the Year of the *Julian Period.*

Year of Christ given

2142

Years elaps'd add

4713

—

Year of the *Julian Period* sought

6855

—

Find the Cycle of the Sun, by dividing the Year of the
Julian Period by 28.

28) 6855 (244

—

56

—

125

112

—

135

112

—

Solar Cycle

23

C 3

The

(28)

The Cycle of the Sun being 28, the corresponding Dominical Letter, by Table 1st. is G.

Find the Golden Number, by dividing the Year of the *Julian* Period by 19.

19)6855(360

57

115

114

Golden Number

15

Enter Table the 4th, and in the Column G, even with the Golden Number 15, you have *April 8th.* for *Easter Sunday.*

In the Table of Moveable Feasts, even with *April 8th.* you find *Whitsunday, May 27th,* the Time sought.

EXAMPLE XXXVI.

What Time was Aft. Wednesday, in the Year of Christ 400.

Find the Year of the *Julian* Period.

Years of our Lord given

400

Years elaps'd add

4713

Year of the *Julian* Period sought

5113

Find the Cycle of the Sun, by dividing the Year of the *Julian* Period by 28.

28)5113(182

28

231

224

73

56

Solar Cycle

17

The

(29)

The Cycle of the Sun being 17, the corresponding Dominical Letters, by Table 1st. are A, G.

Find the Golden Number, by dividing the Year of the *Julian* Period by 19.

19)5113|269

38

131

114

173

171

Golden Number

2

To find *Easter*, enter Table 4th. with the latter of the Dominical Letters G, and even with the Golden Number 2, you have *April* 1st. for *Easter* Sunday.

In the Table of Moveable Feasts, even with *Easter* Sunday of *April* the 1st. you have *February* 14th for *Ash-Wednesday*: But as this was Leap Year, and the Feast sought happening in *February*, by a Note in the Table it must be one Day later, that is, on *February* the 15th.

To find LEAP YEAR.

R U L E.

TAKE one from the given Year of the *Julian* Period, and divide the Rest by 4; if nothing remains it is then Leap Year; if one, 'tis the first; if two, the second; if three, the third after.

The Reason of subtracting one from the given Year, is because the first Year of the *Julian* Period was supposed a Leap Year, (and not the first after) so the second Leap Year, was the 5th Year of the *Julian* Period; the third Leap Year the 9th; the fourth Leap Year the 13th Year of the *Julian* Period, &c.

C 2

EXAMPLE

EXAMPLE XXXVII.

What Year of Biffextile, is the Year of the *Julian* Period 6462.

Subtract one from the given Time, and divide by 4.

Year given	6462
One subtract	1

Divide by 4	4)6461 (1st after
	1615

If for any Year of Christ, you would know when Leap Year happens, it's only dividing by 4, (for the 1st Year of Christ, was the first after Leap Year) and the Remainder shews you, whether Leap Year, first, second, or third after.

EXAMPLE XXXVIII.

What Year of Biffextile, is the Year of Christ 1749.

Divide by 4	4)1749 (1st after
	437

The same as the above Example, taken from the Beginning of the *Julian* Period.

To make the Division short, you may cast away the Thousands and Hundreds, and dividing the Rest by 4, the Remainder gives you the Year of Biffextile sought.

Of the *Anticipation*, or going back of the EQUINOXES.

THE *Julian* Year, consisting of 365 Days, 6 Hours, and the Solar Tropical Year of only 365 Days, 5 Hours, 48 Minutes, 57 Seconds; which is 11 Minutes, 3 Seconds, short of the *Julian* Year: The Sun must enter Aries, or the Vernal Equinox, 11 Minutes, 3 Seconds

nearer

nearer *January* every Year than other ; and as the 6 Hours in the *Julian* Account are not reckoned every Year, but reserv'd to make up a Day in Leap Year, there arises great Differences in the Times of the Equinoxes, one Year from another.

For Instance ; suppose the Sun to enter Aries any Year on *March* 10th, at 6 in the Morning, that Year being Leap Year. To the next *March* 10th, at 6 in the Morning, are only 365 Days ; and the Solar Year being 5 Hours, 48 Minutes, 57 Seconds more, the Sun must enter Aries that Year on *March* the 10th, 11 Hours, 48 Minutes, 57 Seconds ; To the next *March* the 10th, 11 Hours, 48 Minutes, 57 Seconds, are only 365 Days ; that being likewise 5 Hours, 48 Minutes, 57 Seconds short of the Solar Year, the Sun must enter Aries on *March* 10th, 17 Hours, 37 Minutes, 54 Seconds.

To the next *March* the 10th, 17 Hours, 37 Minutes, 54 Seconds, are only 365 Days ; so that 5 Hours, 48 Minutes, 57 Seconds more must be added, to give the Time of the Sun's Entrance into Aries, which makes *March* 10th, 23 Hours, 26 Minutes, 51 Seconds.

To the next *March* 10th, 23 Hours, 26 Minutes, 51 Seconds, as a Day will be added in *February* for Leap Year, will be 366 Days, which is 18 Hours, 11 Minutes, 3 Seconds more than a Solar Year ; that taken from *March* 10th, 23 Hours, 26 Minutes, 51 Seconds, gives *March* 10th, 5 Hours, 15 Minutes, 48 Seconds, the same Time that it enter'd Aries the Leap Year before, excepting 44 Minutes, 12 Seconds, for 4 Years Anticipation.

By this it appears, that the Equinoxes move forward almost 6 Hours every common Year in our Account, then are thrown back above 18 Hours in Leap Year, which makes them recede on the whole, 11 Minutes, 3 Seconds, per Annum.

To

*To find the Time of the SUN's Entrance
into Aries, or the Vernal Equinox.*

R U L E.

TAKE out of Table V. the Anticipation for as many Years as are elaps'd, from the Beginning of the *Julian* Period, to the Beginning of the Year you are in. Subtract that Sum from the Radix, answering to the current Year, whether Leap Year, First, Second, or Third after, and the Remainder will give you the Number of Days to be reckoned from Midnight, the first of *January*. From this Sum taking off 59 Days for a common, or 60 for a Leap Year, (being the Number of Days from the Beginning of the Year to *March*) and the Remainder will give you the Day and Hour in *March* that the Sun enters the Vernal Equinox.

E X A M P L E X X X I X.

What Time did the Sun enter the Vernal Equinox, the first Year of the Reformation of the Calendar, by *Julius Cæsar*, being 45 Years before Christ.

Find what Year of the *Julian* Period that was coincident with.

First Year of Christ was the Year of the } 4714
Julian Period.

From which subtract 45

Year of the *Julian* Period sought 4669

Proceed to find what Year of Bissextile it was, which according to the foregoing Rule, you must do by taking 1 from the Year of the *Julian* Period, and dividing the rest by 4.

Year

(33)

Year of the *Julian* Period
Subtract

4669
1

Divide by

4 | 4668 | 0

1167

As nothing remains it shews you it was Leap Year.
Then take out the Anticipation from Table V.

Anticipation

	Days.	Hours.	Min.	Sec.
For 4000	30	16	40	0
600	4	14	30	0
60	—	11	3	0
8	—	1	28	24
4668 Years	35	19	41	24

Thus you have the Anticipation for 4668 Years, being the Number of Years from the Beginning of the *Julian* Period, to the Beginning of the Year sought.

Which Sum subtract from the Radix in Table V. for Leap Year, (as the current Year was found to be Leap Year.)

	Days.	Hours.	Min.	Sec.
Radix for Leap Year.	118	19	9	13
Anticipation subtract	35	19	41	24
	82	23	27	49

It gives you the Number of Days from the first of *January* at Midnight.

From this Sum taking off 60 Days (the Number of Days in a Leap Year to the first of *March*) and you have the Day and Hour in *March* requir'd.

	Days.	Hours.	Min.	Sec.
Sum found	82	23	27	49
Number subtract	60			

Time of the Sun's Entrance }
into the Vernal Equinox } 22 23 27 49

That is on *March* the 22d, 27 Minutes, 49 Seconds
past Eleven at Night.

EXAMPLE

EXAMPLE XL.

What Time did the Sun enter Aries the First Year of Christ. Proceed after the foregoing Manner, first find the Year of the *Julian* Period.

Year of Christ
Years add 4713

Year of the *Julian* Period 4714

To find the Year of Bissextile subtract 1 from the Year of the *Julian* Period, and divide the rest by 4, the Remainder will give you the Year of Bissextile sought.

Year of the *Julian* Period 4714
Subtract 1

4 | 4713 | 1st

1178

The Remainder is 1, which shews you it was the First after.

Then take out the Anticipation.

Years	Days.	Hours.	Min.	Sec.
For 4000	30	16	40	0
700	5	8	55	0
10		1	50	30
3			33	9
<u>4713</u>	<u>36</u>	<u>3</u>	<u>58</u>	<u>39</u>

The Anticipation for 4713 Years, is 36 Days, 3 Hours, 58 Minutes, 39 Seconds, which subtracted from the Radix for the First after Leap Year.

	Days.	Hours.	Min.	Sec.
Radix 1st after L. Year	118	1	9	13
Anticipation subtract	36	3	58	39

Sun's Entrance into Aries 81 21 10 34

Makes the Sun to enter Aries the 81st Day, 21 Hours, 10 Minutes, 34 Seconds, from the First of *January*.

Take

(35)

Take off 59, the Number of Days in a common Year to the 1st of March.

	Days.	Hours.	Min.	Sec.
	81	21	10	34
Days subtract	59			
Sun enters Aries March	22d	21	10	34

The Time sought is March 22d, 10 Minutes, 34 Seconds after 9 at Night.

EXAMPLE XLI.

What Time did the Sun enter Aries in the Year of the *Julian* Period 6460

Find the Year of Biffextile by subtracting 1, and dividing by 4.

$$\begin{array}{r} 6460 \\ 1 \\ \hline 4)6459(3d \text{ after} \end{array}$$

Take out the Anticipation

	Days.	Hours.	Min.	Sec.
6000	46	1	0	0
400	3	1	40	0
50	0	9	12	30
9	0	1	39	27
6459	49	13	31	57

Subtract the Anticipation from the Radix for the 3d after Leap Year.

Radix	118	13	9	13
Anticipation	49	13	31	57
	68	23	37	16

Take

(36)

Take off 59 Days, and you have the Time in *March* the Vernal Equinox happened.

	Days.	Hours.	Min.	Sec.
	68	23	37	16
Days substract	59			
Sun enters Aries <i>March</i>	9	23	37	16

That is, on *March* the 9th, 37 Minutes, 16 Seconds, past 11 at Night.

EXAMPLE XLII.

What Time did the Sun enter the Vernal Equinox, in the Year of our Lord 1748.

Find the Year of the *Julian* Period.

Year of our Lord given	1748
Years add	4713
Year of the <i>Julian</i> Period sought	6461

Find the Year of Biffextile.

6461

4)6460(0 Leap Year

1615

Take out the Anticipation.

Years	Days.	Hours.	Min.	Sec.
6000	46	1	—	—
400	3	1	40	—
60	—	11	3	—
6460	49	13	43	—

Substract

(37)

Subtract the Anticipation from the Radix for Leap Year,

	Days.	Hours.	Min.	Sec.
Radix	118	19	9	13
Anticipation	49	13	43	0
	69	5	26	13

Take off 60 Days, as it's Leap Year, and you have the Day in *March* the Sun enter'd Aries.

	Days.	Hours.	Min.	Sec.
	69	5	26	13
	60			
	9	5	26	13

That is *March* the 9th, 26 Minutes, 13 Seconds, after 5 in the Morning.

EXAMPLE XLIII.

The Time of the Sun's Entrance into the Vernal Equinox is requir'd for the Year of our Lord 1749.

Find the corresponding Year in the JULIAN Period,

Year of our Lord given	1749
Years add	4713

Year of the JULIAN Period	6462
---------------------------	------

Find the Year of *Bissextile*

6462

1

4)6461 (1st after

1615

D

Take

Take out the Anticipation.

Years.	Days.	Hours.	Min.	Sec.
6000	46	1	—	—
400	3	1	40	—
60	—	11	3	—
1	—	—	11	3
6461	49	13	54	3

Subtract the Anticipation from the Radix, for the 1st after Leap Year.

	Days.	Hours.	Min.	Sec.
Radix	118	1	9	13
Anticipation	49	13	54	3
	68	11	15	10

Take off 59 Days as it's a common Year, and you have the Time in March the Sun enters the Vernal Equinox.

	Days.	Hours.	Min.	Sec.
	68	11	15	10
	59	—	—	—
Sun in Aries March	9	11	15	10

That is on March the 9th, 15 Minutes, 10 Seconds after 11 in the Morning.

I have likewise added in Table V. a Radix for the Years since Christ reckon'd from Midnight.

You need only find the Year of *Bissexile*, and take out the Anticipation for as many Years as are elaps'd since Christ, subtracting that Sum from the Radix for the current Year, and you have the Time in March the Equinox happens.

EXAMPLE

(39)

EXAMPLE XLIV.

I want to know when the Sun enter'd Aries the Year of the Passion; being in the Year of Christ 33.

Find the Year of Bissextile by dividing the given Year of Christ by 4.

$$4 \overline{)33} \text{ (1st after Leap Year.}$$

8

Take out the Anticipation for as many Years as were elaps'd since Christ's Birth.

Years	Days.	Hours.	Min.	Sec.
30	0	5	31	30
2	0	0	22	6
32	0	5	53	36

Subtract the Anticipation from the Radix for the first after Leap Year, and you will have the Time requir'd, reckon'd from Midnight.

	Days.	Hours.	Min.	Sec.
Radix	March 22	21	10	34
Anticipation substract	—	5	53	36
Sun in Aries	22	15	16	58

That is on *March* 22d, 16 Minutes, 58 Seconds after 3 in the Afternoon.

EXAMPLE XLV.

What Time did the Sun enter Aries the Year that the *Nicene* Council met; being in the Year of Christ 325.

Find the Year of Bissextile.

$$4 \overline{)325} \text{ (1st after Leap Year.}$$

81

D 2

Take

(40)

Take out the Anticipation.

	Days.	Hours.	Min.	Sec.
300	2	7	15	0
20		3	41	0
4			44	12
324	2	11	40	12

Subtract the Anticipation from the Radix, for the first after Leap Year.

	Days.	Hours.	Min.	Sec.
Radix	22	21	10	34
Anticipation subtract	2	11	40	12
Sun in Aries <i>March</i>	20	9	30	22

It gives *March* the 20th, 30 Minutes, 22 Seconds, after 9 in the Morning.

EXAMPLE XLVI.

What Time was the Vernal Equinox, in the Year of our Lord 1747.

Find the Year of Bissextile.

4)1747(3d after Leap Year,

436

Take out the Anticipation.

	Days.	Hours.	Min.	Sec.
1000	7	16	10	0
700	5	8	55	0
40		7	22	0
6		1	6	18
1746	13	9	33	18

Subtract

(41)

Subtract the Anticipation from the Radix for the 3d after Leap Year

	Days.	Hours.	Min.	Sec.
Radix 3d after L. Year	23	9	10	34
Anticipation subtract	13	9	33	18
Sun in Aries <i>March</i>	9	23	37	16

The Vernal Equinox happen'd in the Year of Christ 1747, on *March* 9th, 37 Minutes, 16 Seconds past ~~at~~ at Night. The same as Example 41, taken from the Beginning of the *Julian* Period.

EXAMPLE XLVII.

What Time did the Vernal Equinox happen, in the Year of our Lord 1748.

Find the Year of the Bissextile.

4)1748(Leap Year

437

Take out the Anticipation.

Years.	Days.	Hours.	Min.	Sec.
1000	7	16	10	0
700	5	8	55	0
40	0	7	22	0
7	0	1	17	21
1747	13	9	44	21

Subtract the Anticipation from the Radix for Leap Year.

	Days.	Hours.	Min.	Sec.
Radix for Leap Year.	22	15	10	34
Anticipation subtract	13	9	44	21
Sun's Entrance into Aries	9	5	26	13

D 3

The

(42)

The Sun enter'd the Vernal Equinox, in the Year of our Lord 1748, on *March* 9th, 26 Minutes, 13 Seconds after 5 in the Morning.

This is further prov'd by Example 42, taken from the Beginning of the *Julian* Period.

EXAMPLE XLVIII.

What Time does the Sun enter Aries, in the Year of our Lord 1749.

Find the Year of Biffextile.

4) 1749 (1st after Leap Year.

⁴³⁷
Take out the Anticipation.

	Days.	Hours.	Min.	Sec.
1000	7	16	10	0
700	5	8	55	0
40	0	7	22	0
8	0	1	28	24
1748	13	9	55	24

Subtract the Anticipation from the Radix, for the first after Leap Year.

	Days.	Hours.	Min.	Sec.
Radix	22	21	10	34
Anticipation Subtract	13	9	55	24
Sun in Aries <i>March</i>	9	11	15	10

The Sun enters Aries this Year *March* 9th, 15 Minutes, 10 Seconds, after eleven in the Morning; agreeable to Example 43, taken from the Beginning of the *Julian* Period.

EXAMPLE XLIX.

What Time will the Vernal Equinox happen in the Year of our Lord 1890.

4) 1890 (2d after Leap Year

472

Years.

Years.	Anticipations.			
	Days.	Hours.	Min.	Sec.
1000	7	16	10	0
800	6	3	20	
80		14	44	
9		1	39	27
1889	14	11	53	27
	Days.	Hours.	Min.	Sec.
Radix for 2d after Leap Year	23	3	10	34
Anticipation subtract	14	11	53	27
	8	15	17	7

Sun will enter the Vernal Equinox on *March* the 8th, 37 Minutes, 7 Seconds past three in the Afternoon.

Of the GREGORIAN Account, or NEW STYLE.

POPE GREGORY the 13th, finding the *Julian* Account erroneous, by reason of the foregoing Anticipation, resolv'd upon an Alteration of it, which he finish'd in the Year of Christ 1582, and which from him was call'd the *Gregorian* Account, or *New Stile*. The *Pope* in this Reformation look'd no further back than the Council of *Nice*, which was held in the Year of Christ 325, and finding since that Time the Vernal Equinox had receded 10 Days, he order'd 10 Days of that Year (1582) to be omitted, which was done by calling the 5th of *October* the 15th.

And to prevent Errors of the like Nature for the future, he order'd the subtracting 3 Days from every Revolution of 400 Years, to be done by omitting the 29th of *February*, at the End of 3 Centuries, viz. in the Years of our Lord 1700, 1800, and 1900, and at the End of
the

the 4th Century, that is in the Year of our Lord 2000, to retain it. This is therefore the Reason that before the 29th of *February* 1700, the Difference between the New and Old Stile was only 10, whereas since that Time it has been 11 Days; and after the Year of our Lord 1800 will be 12 Days before us, if we don't come in to their Way of reckoning.

There was some talk of our Legislature altering our Account of Time, which if they do, in my humble Opinion, it would be the best to follow the Method of Pope *Gregory*, by omitting (now) 11 Days, all at once, and so continue the Account with the *Gregorians*; for if they alter it any other way, they will quit by much the best System (the *Julian*) and not gain the Point propos'd by such an Alteration, which is to agree with our Neighbours in our Dates, and observance of publick Times. The *Julian* Account is abundantly the best to reckon Time by, being an interrupted Series of 4 Years, made equal to each other, by the Addition of a Day every 4th Year; it is true, they are more than the Tropical Years by 11 Minutes, 3 Seconds per Annum, but this is sufficiently noted. that no great Inconvenience can arise from it. By the *Gregorian* Account, the Year is brought nearer the Tropical Return of the Sun, at the End of each Century, by omitting that Day in Leap Year, which the *Julian* Account retains, but then it takes 400 Years in making them equal to each other, or giving their mean Quantity, which is done in 4 Years by the *Julian*.

The *Gregorian* Account takes in no *Æra* of Consequence, whereas the *Julian* was fix'd a little before that grand Epoch, the Birth of Christ.

The *Gregorian* Account agrees with the *Julian* in the Days of the Week, being always in the same Day of the Week together.

They both use the same Calendar; so far as having the same Number of Months and same Number of Days in each Month, &c. Agree with each other in Bissextile, for 99 Years, then the *Gregorian* has a Common, instead of a Leap One; after that they agree for 99 Years longer, &c. They differ, in that they very seldom will begin the Year on the same of the Week.

They

They differ in the Day of the Month; and very often are not in the same Month together.

They differ in the Times of observing publick Feasts, &c.

To find the GREGORIAN Dominical Letters.

THE casting off ten Days in 1582, as likewise omitting the Day for Leap Year in 1700, breaking the Order of the Dominical Letters, making it impossible for the Cycle of the Sun in the *Julian* Table, Number I. to point out the Dominical Letters for the Gregorian Years, oblig'd me to form Tables for adjusting the Cycle of the Sun to the proper Dominical Letters, for the Years in the *Gregorian* Account.

R U L E.

Find the Solar Cycle for the given Year, and even with it in the Tables VI. VII. VIII. IX. X. or XI. you have the Dominical Letters sought.

If the Dominical Letter requir'd, be between the Years of our Lord 1582 and 1699, inclusive, look in Table VI.

If between the Years of our Lord 1701 and 1799, inclusive, look in Table VII.

If between 1801 and 1899, inclusive, look in Table VIII.

If between 1901 and 2099, inclusive, look in Table IX.

If between 2101 and 2199, inclusive, the same Letters as the *Julian* uses, will answer for this Century, (or Table X.) being 14 Days before that Account, which is even Weeks.

If the Year sought, be between the Years of our Lord 2201 and 2299, inclusive, look in Table XI.

EXAMPLE

(46)

EXAMPLE L.

What was the Gregorian Dominical Letter, for the Year of Christ 1670.

Find the Solar Cycle, which according to the foregoing Examples, you must do by bringing the Year into the *Julian* Period, and dividing by 28, the Remainder will be the Cycle of the Sun.

Year of our Lord given	1670
Years elaps'd, add	4713
Year of the <i>Julian</i> Period	6383

28)6383(227

56

78

56

223

196

Cycle of the Sun 27

As the Year requir'd, is between 1582, and 1699, look in Table VI. and even with the Solar Cycle 27, is the Dominical Letter E. Enter the Calendar with the Letter E, and you have an Almanack for that Year, New Stile.

EXAMPLE LI.

The Gregorian Dominical Letter is requir'd for the Year of the *Julian* Period 6462.

Find the Solar Cycle.

28)6462(23

56

86

84

Cycle of the Sun 22

Find

(47)

Find what Year of our Lord, the given Time is answerable to.

Year of the <i>Julian</i> Period	6462
Years subtract	4713
Year of our Lord	<u>1749</u>

As this is between the Years of our Lord 1701 and 1799, look in Table VII. and you'll find the Dominical Letter over-against the Cycle of the Sun 22, to be E.

EXAMPLE LII.

What will be the Gregorian Dominical Letters for the Year of Christ 1820.

Find the Solar Cycle.

$$\begin{array}{r} 1820 \\ 4713 \\ \hline 28)6533(233 \end{array}$$

56

93
84

93
84

Cycle of the Sun 9

Enter Table VIII. as the Year given is between 1801 and 1899, and you'll find the Dominical Letters even with the Cycle of the Sun 9, to be B, A.

EXAMPLE LIII.

What was the *Gregorian* Dominical Letter for the Year of our Lord 1700.

This Year instead of being Bissextile was reckon'd a common one, according to the *Gregorian* Rule, so is one of those that break the Order of the Dominical Letters, and is plac'd by itself at the Top of the Table, as are likewise

(48)

likewise the Dominical Letters for 1800, 1900, 2100, and 2200.

EXAMPLE LIV.

What will be the *Gregorian* Dominical Letters for the Year of the *Julian* Period 6713.

Find the Solar Cycle.

28)6713(239

56

111

84

273

252

Cycle of the Sun

21

Find what Year of Christ it is to apply it to it's proper Table.

Year of the *Julian* Period

6713

Years subtract

4713

Year of our Lord

2000

Enter Table IX. as this Year is between 1901 and 2099. Look for the Solar Cycle 21, and overagainst it you have B A. which are the Dominical Letters sought,

This is the Year that retains the 29th of *February*, according to the *Gregorian* Order.

EXAMPLE LV.

The *Gregorian* Dominical Letters are sought for the Year of Christ 2140.

Find

(49)

Find the Solar Cycle.

$$\begin{array}{r} 2140 \\ 4713 \\ 28 \overline{) 6853 (244} \end{array}$$

56

125
112

133
112

Cycle of the Sun

21

Overagainst this Cycle of the Sun in Table X. you have the Dominical Letters C B.

The same as the *Julian* Dominical Letters for that Year.

The *Gregorian* Dominical Letter is requir'd for the Year of the *Julian* Period 7000.

Find the Cycle of the Sun.

$$\begin{array}{r} 28 \overline{) 7000 (25} \\ 56 \end{array}$$

140
140

As nothing remains the Solar Cycle is 28 :
Find what Year of Christ it is coincident with.

Year of the *Julian* Period

7000

Years subtract

4713

Year of our Lord

2287

Look in Table XI. and even with the Cycle of the Sun 28. is B the Dominical Letter sought.

E

Of

Of the Defect in the E P A C T.

WHAT was said of the Epact before must be regarded for the general Use of it only ; not that it corresponds exactly with the Motion of the Moon in 19 Years, for Observation hath found great Differences to arise from it in the settling of *Easter*, which may be accounted for as follows.

When the Council of *Nice* met to fix *Easter*, and thereby quell those Heats that had arisen betwixt the Eastern and Western Churches, the *Metonic* Cycle was had in great Esteem, for they set down the Time of New Moon in the first Year of this Cycle, for *January, February, March, &c.* and mark'd the Days which they fell on, in the Calendar with Number 1.

The next Year, the Days that the New Moons fell on in the several Months, they mark'd in the Calendar with Number 2. and so on for 19 Years, which Marks were call'd the Golden Numbers ; then they concluded the New Moons wou'd come round exactly again, as they were mark'd in the Calendar, and thereupon made an Order that *Easter* should be the first Sunday after the first Full Moon that shou'd happen next after the 21st of *March*, thinking the Vernal Equinox always to continue on the 21st of *March*, as likewise, that the Golden Numbers in the Calendar, wou'd always mark out the New Moon. Upon this Supposition, the Table Number 4. was form'd for finding of *Easter* for ever ; but the *Nicene* Council were mistook in Point of the Equinox 11 Minutes 3 Seconds per Annum, as shewn before ; which has caus'd, since that Time, a Difference of 11 Days ; and that the New Moons don't come round exactly again in 19 Years, may be prov'd thus,

From Table XIII, in 19 *Julian* mean Years are contain'd 6939 Days, 18 Hours ; and by Table XV you will find that in 19 *Julian* Years are 235 Lunations, which contain, according to Table XIV, 6939 Days, 16 Hours, 32 Minutes. This shews they come round in 1 Hour, 28 Minutes,

minutes less than 19 Years, and of Course the New Moons have receded back, at the Rate of 1 Hour, 28 Minutes for every 19 Years since the *Nicene* Council; this Difference hath thrown the Golden Numbers in the Calendar, which we will call the Ecclesiastical New Moons, four Days and a half later than the Astronomical or real New Moons; for which Reason, when the Full Moon happens within 4 Days of the 21st of *March*, the *Nicene* Rule contradicts the Table Number 4. which our Church uses for finding of *Easter*; for supposing the Astronomical or real Full Moon to fall on *March* the 19th, the Ecclesiastical Full Moon that Year, wou'd be suppos'd *March* the 23d; in such Case, by the Table, *Easter* Day wou'd be the Sunday after, so wou'd be the Sunday following the Full Moon of *March* the 19th, and not according to the Rule of *March* the 21st; however, it wou'd be the Time our Church wou'd celebrate *Easter*, for we follow Table IV. and not the *Nicene* Rule.

The Note in the Rule for finding of *Easter* in our Common Prayer Books, *viz.* If the Full Moon happens on a Sunday, *Easter* Day to be the Sunday following shall be prov'd an Error, crept in since the *Nicene* Council; but of this hereafter.

*To find the MOON's Age at any Time in
the JULIAN Period.*

THE Year is divided into 12 Months, call'd Calendar Months, which neither answer to a Round of the Moon, nor to the Time that the Sun takes in moving thro' a 12th Part of the Zodiac, or round of the Sun, but were fill'd up at the different Times of altering the Calendar, to make the Year consist of 365 Days, 6 Hours; therefore the Day of the Month can't point out the Moon's Age, without the Assistance of a Table.

There is the Periodical Month, or Time that the Moon takes in finishing her Round in the Heavens; but finding the Sun gone from the Place that she left her, this can't

be the Month of common Observation, that is, from one Full or New Moon to the next, which is call'd the Synodical Month, and is to be understood in our general speaking of Lunar Months.

There is the Solar Month, or Time that the Sun takes in moving thro' a 12th Part of the Zodiac, but will leave these to Astronomers, whose proper Study it is, and speak of the Synodical Month, as far as it concerns our present Purpose. The Quantity of the Synodical Month is not always the same; for in Summer, when the Sun seems to move slow, it is short, and contains about 29 Days, 6 Hours, 42 Minutes, but in Winter, when the Sun seems to move fast, the Moon does not fetch up the Sun so soon, which makes the Synodical Month greater, containing 29 Days, 19 Hours, 37 Minutes.

This Inequality of the Moon's Motion, obliges us to reckon by its mean Motion, taking one Month with another, whose Quantity according to the best Astronomers is 29 Days, 12 Hours, 44 Minutes, 3 Seconds, 9 Thirds; upon this Hypothesis we have form'd our Tables, which will give you the Mean Quantity of the Moon's Age, at any Time in the *Julian* Period.

There are a great many Tables form'd by Astronomers to find the Moon's Age; but I trust ours will be found as short, as easy, and as general; at the same Time it will inform you how many Lunations any Number of Years contain, as likewise the Difference between the real or Astronomical, and the reputed or Metonic Epact.

R U L E.

Take from Table XV. the Lunations and Epacts for as many Years and Months as are elaps'd, from the Beginning of the *Julian* Period to the Time you seek for, adding the Radix at the Top of the Table to the said Sum, (this Radix is the suppos'd Age of the Moon, the Day before the *Julian* Period began) the Remainder of the Epacts, after casting off as many Lunations as are contain'd in them, will shew you the true Epact, or Moon's Age, reckon'd from Midnight *January* the First.

E X A M P L E

EXAMPLE LVII.

What Time was it full Moon in *April*, in the Year of our Lord 326.

Find the Year of Biffextile.

4) 326 (2d after Leap Year.

81

Find the Year of the *Julian* Period.

Year of Christ given 326

Years add 4713

Year of the *Julian* Period 5039

Take out of Table XV. the Lunations and Epacts for 5038 Years, and from Table XVI. the Lunations and Epacts for *March* in a common Year, being the full Time elaps'd from the Beginning of the *Julian* Period, to the beginning of the Month sought, adding the Radix to this Sum.

Years	Lunations Radix	Days.	Epacts	
			Hours.	Min.
5000	61842	19	2	
20	247	19	3	5
18	222	10	22	39
		19	5	0
<i>March</i>	3	1	9	47
5038	62314	69	18	31
	2	59	1	28
	62316	10	17	3

After taking off from the Epacts as many Lunations as they contain, (which are 2) and adding them to the other Lunations, it appears, that on the last Day of *March*, in the Year of our Lord 326, there were 10 Days 17 Hours, 3 Minutes gone in the 62316th Lutation, since the Beginning of the *Julian* Period; so to find full Moon

E 3

be the Month of common Observation, that is, from one Full or New Moon to the next, which is call'd the Synodical Month, and is to be understood in our general speaking of Lunar Months.

There is the Solar Month, or Time that the Sun takes in moving thro' a 12th Part of the Zodiac, but will leave these to Astronomers, whose proper Study it is, and speak of the Synodical Month, as far as it concerns our present Purpose. The Quantity of the Synodical Month is not always the same; for in Summer, when the Sun seems to move slow, it is short, and contains about 29 Days, 6 Hours, 42 Minutes, but in Winter, when the Sun seems to move fast, the Moon does not fetch up the Sun so soon, which makes the Synodical Month greater, containing 29 Days, 19 Hours, 37 Minutes.

This Inequality of the Moon's Motion, obliges us to reckon by its mean Motion, taking one Month with another, whose Quantity according to the best Astronomers is 29 Days, 12 Hours, 44 Minutes, 3 Seconds, 9 Thirds; upon this Hypothesis we have form'd our Tables, which will give you the Mean Quantity of the Moon's Age, at any Time in the *Julian* Period.

There are a great many Tables form'd by Astronomers to find the Moon's Age; but I trust ours will be found as short, as easy, and as general; at the same Time it will inform you how many Lunations any Number of Years contain, as likewise the Difference between the real or Astronomical, and the reputed or Metonic Epact.

R U L E.

Take from Table XV. the Lunations and Epacts for as many Years and Months as are elaps'd, from the Beginning of the *Julian* Period to the Time you seek for, adding the Radix at the Top of the Table to the said Sum, (this Radix is the suppos'd Age of the Moon, the Day before the *Julian* Period began) the Remainder of the Epacts, after casting off as many Lunations as are contain'd in them, will shew you the true Epact, or Moon's Age, reckon'd from Midnight *January* the First.

EXAMPLE

EXAMPLE LVII.

What Time was it full Moon in *April*, in the Year of our Lord 326.

Find the Year of Biffextile.

4) 326 (2d after Leap Year.

81

Find the Year of the *Julian* Period.

Year of Christ given

326

Years add

4713

Year of the *Julian* Period

5039

Take out of Table XV. the Lunations and Epacts for 5038 Years, and from Table XVI. the Lunations and Epacts for *March* in a common Year, being the full Time elaps'd from the Beginning of the *Julian* Period, to the beginning of the Month sought, adding the Radix to this Sum.

Years	Lunations	Days.	Epacts	Hours.	Min.
	Radix	19	2		
5000	61842	19	3		5
20	247	10	22		39
18	222	19	5		0
<i>March</i>	3	1	9		47
5038	62314	69	18		31
	2	59	1		23
	62316	10	17		3

After taking off from the Epacts as many Lunations as they contain, (which are 2) and adding them to the other Lunations, it appears, that on the last Day of *March*, in the Year of our Lord 326, there were 10 Days 17 Hours, 3 Minutes gone in the 62316th Lunation, since the Beginning of the *Julian* Period; so to find full

E 3

Moon

Moon in *April*, subtract the Epact 10 Days, 17 Hours, 3 Minutes from a full Moon, or half a Lunation, and the Remainder will give you the Day and Hour in *April* that the full Moon happened.

	Days.	Hours.	Min.
Half a Lunation	14	18	22
Age of the Moon the last Day of March	10	17	3
Full Moon in <i>April</i>	4	1	19

The mean Time requir'd that full Moon happened is *April* the 4th at one in the Morning.

If nothing further than New or full Moon be sought, you need not take out the Lunations, only the Epacts, with the Radix, and rejecting as many Lunations as there are in the Epacts, when added together, the Remainder gives you the Age of the Moon, the last Day of the preceding Month, which subtracted from a whole Lunation when a New Moon is sought, or half a Lunation if full Moon be wanted, (unless the Remainder be above half a Lunation, then you must subtract it from a Lunation and a half to find the full Moon) and you have the Day and Hour in the Month requir'd.

EXAMPLE LVIII.

What Time was it New Moon in *January* in the Year of Christ 325.

Find what Year of the *Julian Period*.

Year of our Lord

325

Years add

4713

Year of the *Julian Period*

5038

Take

(55)

Take out the Epacts.

Years.	Radix	Days.	Hours.	Min.
5000	19	19	3	5
20	10	10	22	39
17	8	8	13	48
5037	57	57	17	32
Cast off one Lunation	29	29	12	44
	28	28	4	48

This is the Age of the Moon the last Day in the preceding Year, so to find New Moon subtract this Remainder from a Lunation.

	Days.	Hours.	Min.
A Lunation	29	12	44
Age of the Moon last Day of the preceding Month	28	4	48
New Moon in January	1	7	56

The mean Time of New Moon sought is January the first at 7 in the Morning.

For a Proof of this last Example find the Golden Number for the Year of our Lord 325.

19)5038(265

38	
123	
114	
98	
95	

Golden Number

3

Consult

Consult the Calendar in our Common Prayer Books, where you'll find the Number 3 before the first of January, to denote the New Moon then happen'd, which must be right, as this was the Time the Golden Number was adjusted for.

E X A M P L E LIX.

The New Moon is sought for *January*, in the Year of Christ 1750.

Find the corresponding Year in the *Julian* Period.

Year of our Lord	1750
Years add	4713

Year of the <i>Julian</i> Period	6463
----------------------------------	------

Take out the Epacts

	Days.	Hours.	Min.
Radix	19	2	0
6000	5	5	39
400	12	3	52
60	3	7	23
2	22	6	22

6462 Years	62	1	6
------------	----	---	---

Cast off two Lunations	59	1	28
------------------------	----	---	----

2	23	38
---	----	----

	Days.	Hours.	Min.
One Luration	29	12	44
Remainder	2	23	38

New Moon <i>January</i>	26	13	6
-------------------------	----	----	---

Subtracting the Remainder from a Luration, as New Moon was requir'd, it gives *January* the 26th, at one in the Afternoon, the mean Time of New Moon sought.

EXAMPLE

(57)

EXAMPLE LX.

The full Moon is sought for *December*, in the Year of the *Julian Period* 4300.

Find whether it's a common or Leap Year, by subtracting 1 and dividing by 4.

4300

1

4)4299(3d after Leap Year

1074

Take out the Epacts.

	Days.	Hours.	Min.
Radix	19	2	
4000	3	11	46
200	20	20	18
80	14	5	52
19	0	7	27
4299 Years			
November in a common Year	9	3	55
	67	3	18
Cast off two Lunations	59	1	28
	8	1	50

The Remainder being the Age of the Moon, the last Day of *November*, subtract it from half a Lunation, to find the full Moon in *December*.

	Days.	Hours.	Min.
Half a Lunation	14	18	22
Remainder	8	1	50
Full Moon in <i>December</i>	6	16	32

It gives you the 6th Day at four in the Afternoon, for the Time of Full Moon sought. EXAMPLE

Consult the Calendar in our Common Prayer Books, where you'll find the Number 3 before the first of January, to denote the New Moon then happen'd, which must be right, as this was the Time the Golden Number was adjusted for.

E X A M P L E LIX.

The New Moon is sought for *January*, in the Year of Christ 1750.

Find the corresponding Year in the *Julian* Period.

Year of our Lord	1750
Years add	4713

Year of the <i>Julian</i> Period	6463
----------------------------------	------

Take out the Epacts

	Days.	Hours.	Min.
Radix	19	2	0
6000	5	5	39
400	12	3	52
60	3	7	13
2	22	6	22

6462 Years	62	1	6
------------	----	---	---

Cast off two Lunations	59	1	28
------------------------	----	---	----

2	23	38
---	----	----

	Days.	Hours.	Min.
One Lunation	29	12	44
Remainder	2	23	38

New Moon <i>January</i>	26	13	6
-------------------------	----	----	---

Subtracting the Remainder from a Lunation, as New Moon was requir'd, it gives *January* the 26th, at one in the Afternoon, the mean Time of New Moon sought.

EXAMPLE

EXAMPLE LX.

The full Moon is sought for *December*, in the Year of the *Julian Period* 4300.

Find whether it's a common or Leap Year, by subtracting 1 and dividing by 4.

4300

4)4299(3d after Leap Year

1074

Take out the Epacts.

	Days.	Hours.	Min.
Radix	19	2	
4000	3	11	46
200	20	20	18
80	14	5	52
19	0	7	27
4299 Years			

November in a common Year 9 3 55

Cast off two Lunations 67 3 18
59 1 28

8 1 50

The Remainder being the Age of the Moon, the last Day of *November*, subtract it from half a Lunation, to find the full Moon in *December*.

	Days.	Hours.	Min.
Half a Lunation	14	18	22
Remainder	8	1	50

Full Moon in *December* 6 16 32

It gives you the 6th Day at four in the Afternoon, for the Time of Full Moon sought. EXAMPLE

EXAMPLE LXI.

The Full Moon is requir'd for *December*, in the Year of our Lord 1800.

Find whether it is a common or Leap Year.

4)1800(Leap Year

450

Find the Year of the Julian Period.

1800

4713

Year of the Julian Period 6513

Take out the Epacts.

	Days.	Hours.	Min.
Radix	19	2	
6000	5	5	39
500	7	19	39
12	12	11	20
6512 Nov. in Leap Year	10	3	55
Cast off one Luration	54	18	33
	29	12	44
	25	5	49

As this Remainder or Age of the Moon the last Day of the preceding Month can't be subtracted from half a Luration, to find the next full Moon you must subtract it from a Luration and a half.

	Days.	Hours.	Min.
One and a Half Luration	44	7	6
Remainder	25	5	49
	19	1	17

It gives *December* the 19th at one in the Morning the mean Time of full Moon sought.

EXAMPLE

(59)

EXAMPLE LXII.

What Time did the New Moon happen in January in the Year of Christ 342.

Find the Year of the Julian Period.

	342
	<u>4713</u>
Year of the Julian Period	<u>5055</u>

Take out the Epacts.

	Days.	Hours.	Min.
Radix	19	2	
5000	19	3	5
40	21	21	18
14	5	4	58
<u>5054</u>	<u>65</u>	<u>7</u>	<u>21</u>
Cast off two Lunations	59	1	28
	<u>6</u>	<u>5</u>	<u>53</u>
One Lunation	29	12	44
Remainder	<u>6</u>	<u>5</u>	<u>53</u>
New Moon in January	<u>23</u>	<u>6</u>	<u>51</u>

Subtracting the Remainder from a Lunation and it gives you January the 23d at 6 in the Morning, for the Time of New Moon requir'd.

EXAMPLE LXIII.

What Day was it New Moon in January, in the Year of our Lord 1748.

Find the Year of the Julian Period.

1748
<u>4713</u>
<u>6461</u>

Take

(60)

Take out the Epacts.

	Days.	Hours.	Min.
Radix	19	2	6
6000	5	5	39
- 400	12	3	52
60	3	7	13
6460	39	18	44
Cast off one Luration	29	12	44
	10	6	0
	Days.	Hours.	Min.
A Luration	29	12	44
Remainder	10	6	—
New Moon <i>January</i>	19	6	44

Subtracting the Remainder from a Luration it gives *January* the 19th at 6 in the Morning, the Time requir'd.

By these two last Examples may be further prov'd the Errors of the Golden Number, or Number of Direction as apply'd to the Calendar in the Common Prayer Book, and were thought to point out the New Moons in each Year so was the Foundation of the erroneous Observance of *Easter* since that Time.

The Golden Number for the Year of Christ 342 must be found by dividing the correspondent Year of the *Julian* Period by 19.

Year of Christ given	342
Years add	4713
Year of the <i>Julian</i> Period	5055

(61)

19)5055(266

38

125

114

115

114

1

Golden Number

Find the Golden Number for the Year of Christ 1748,

Year of our Lord given

1748

Years add

4713

Year of the *Julian* Period

6461

19)6461(340

57

76

76

Golden Number

1

It appears that the Number of Direction in both these Years are the same, and if the New Moons had come round exactly in 19 Years, the New Moon for both Years wou'd have happen'd on the same Day of the Month.

The New Moon in the Year of Christ 342 happen'd on *January* 23, as pointed out by the Number of Direction I, in the Calendar of our Common Prayer Books; but the New Moon for 1748, on *January* the 19th, that is 4 Days sooner.

EXAMPLE LXIV.

The full Moons are requir'd for each Month in the Year of our Lord 1750.

F

Find

(62)

Find the Year of Bissextile.

4)1750(2d after

437

Find the Year of the *Julian* Period.

Year of our Lord given 1750

Years add 4713

Year of the *Julian* Period 6463

Take out the Epacts.

	Radix	Days.	Hours.	Min.
		19	2	—
6000		5	5	39
400		12	3	52
60		3	7	13
2		22	6	22
<u>6462</u>		62	1	6
Cast off two Lunations		59	1	28
Moon's Age the last Day of the preceding Year; or, the Epact for the Year of our Lord 1750		2	23	38

To find the Full Moon in *January*.

Subtract the Epact from half a Lunation.

	Days.	Hours.	Min.
Half a Lunation	14	18	22
Epact for the Year	2	23	38
	11	18	44

Full Moon *January* 11th at 6 at Night.

To find the Full Moon in *February*.

Add to the Epact for the Year the Epact for *January*,
in a common Year, subtracting this from half a Lunation,
or

or if it be above half a Luration from a Luration and a half, the Remainder gives you the Time sought; observing always to cast off a Luration as often as one occurs by any Addition of the Epacts.

	Days.	Hours.	Min.
Epact for the Year	2	23	38
<i>January</i> in a common Year	1	11	15
	4	10	53
Half a Luration	14	18	22
Moon's Age last Day of <i>January</i>	4	10	53
	10	7	29

Full Moon *February* 10th at 7 in the Morning.

	Days.	Hours.	Min.
Epact for the Year	2	23	38
<i>February</i> in a common Year	29	11	15
	32	10	53
Cast off one Luration	29	12	44
	2	22	9
	Days.	Hours.	Min.
Half a Luration	14	18	22
Moon's Age last Day of <i>Feb.</i>	2	22	9
	11	20	13

Full Moon *March* 11th, at 8 at Night.

	Days.	Hours.	Min.
Epact for the Year	2	23	38
<i>March</i> in a common Year	1	9	47
	4	9	25

	Days.	Hours.	Min.
Half a Lunation	14	18	22
Moon's Age last Day of <i>March</i>	4	9	25
	10	8	57

Full Moon *April* 10th at 8 in the Morning.

	Days.	Hours.	Min.
Epact for the Year	2	23	38
<i>April</i> in a common Year	1	21	3
	4	20	41

	Days.	Hours.	Min.
Half a Lunation	14	18	22
Moon's Age last Day of <i>April</i>	4	20	41
	9	21	41

Full Moon *May* 9th at 9 at Night.

	Days.	Hours.	Min.
Epact for the Year	2	23	38
<i>May</i> in a common Year	3	8	19
	6	7	57

	Days.	Hours.	Min.
Half a Lunation	14	18	22
Moon's Age last Day of <i>May</i>	6	7	57
	8	10	25

Full Moon *June* 8th at 10 in the Morning.

	Days.	Hours.	Min.
Epact for the Year	2	23	38
<i>June</i> in a common Year	3	19	35
	6	19	13

Half

(65)

	Days.	Hours.	Min.
Half a Luration	14	18	22
Moon's Age last Day of <i>June</i>	6	19	13
	7	23	9

Full Moon *July* 7th, at 11 at Night.

	Days.	Hours.	Min.
Epact for the Year	2	23	38
<i>July</i> in a common Year	5	6	51
	8	6	29
Half a Luration	14	18	22
Moon's Age last Day of <i>July</i>	8	6	29
	6	11	53

Full Moon *August* 6th, about Noon.

	Days.	Hours.	Min.
Epact for the Year	2	23	38
<i>August</i> in a common Year	6	18	7
	9	17	45
Half a Luration	14	18	22
Moon's Age last Day of <i>August</i>	9	17	45
	5	0	37

Full Moon *September* 5th, soon in the Morning.

	Days.	Hours.	Min.
Epact for the Year	2	23	38
<i>September</i> in a common Year	7	5	23
	10	5	1

F 3

Half

Half a Luration	14	18	22
Moon's Age last Day of } September	10	5	1
	4	13	21

Full Moon *October* 4th, at 1 in the Afternoon.

	Days.	Hours.	Min.
Epact for the Year	2	23	38
<i>October</i> in a common Year	8	16	39
	11	16	17

Half a Luration	14	18	22
Moon's Age last Day of <i>October</i>	11	16	17
	3	2	5

Full Moon *November* 3d, at 2 in the Morning.

	Days.	Hours.	Min.
Epact for the Year	2	23	38
<i>November</i> in a common Year	9	3	55
	12	3	33

Half a Luration	14	18	22
Moon's Age last Day of } <i>November</i>	12	3	33
	2	14	49

Full Moon *December* the 2d, at 2 in the Afternoon.

What has been said of the Moon's Age, and the Examples that hath been shewn must be understood as the Mean Time of Moon's Age, not the apparent one, being sometimes over, sometimes short, of this last, by 14 Hours, occasion'd by the many Irregularities of the Moon's Motion. However, this Difference between the Mean and True Time does not increase with the Number of Years; for

for the Mean may prove as near the True Time a thousand Years hence, as it wou'd prove now: There wou'd be the same Objections against Clocks and Watches (for they give only the Mean, not the Apparent Time) as against these Tables.

Of the Times of observing PUBLIC FEASTS, particularly EASTER.

THE Church, at the first fixing their Feasts, it's very plain, had Regard to the Sun's Entrance into the principal Points of the Ecliptic.

As the *Annunciation*, was plac'd on the 25th of *March*, which was thought to be the Day of the Sun's Entrance into *Aries*; or, the *Vernal Equinox*.

The Feast of *St. John*, on the 24th of *June*, which was thought to be the Time of the *Summer Solstice*.

The Feast of *St. Michael*, on the 29th of *September*, which was thought to be the *Autumnal Equinox*.

And, the *Birth of Christ*, on the 25th of *December*, which was thought to be the *Winter Solstice*.

All which Feasts, by being fix'd to the Days of the Month, have alter'd from the Times that those, who first celebrated them, intended; were they to be observ'd according to the Time of the Sun's Entrance into those Points, they would correspond with the first Institution of them, and we shou'd have no Occasion to alter the Civil Year on their Account.

The Celebration of *Easter*, of all Feasts, hath caus'd the most Trouble, so many other Feasts depending upon it, and the Time of observing it being order'd, by the *Nicene Council*, to be determin'd by *Lunæ-Solar* Motions, and no Round of them cou'd be found agreeable to the Length of the Year; from hence so great Confusion arose that determin'd Pope *Gregory XIII.* to alter the Civil Year on its Account, rather than differ from the Decree of that Council. This Alteration might have been prevented had it been only order'd, that *Easter* shou'd

shou'd be the Sunday upon, or following the first Full Moon after, the *Vernal Equinox*, (as was intended) and not after the 21st of *March*; this might have been found at any Time in the *Julian Period* without an Alteration of the Civil Year.

To find the Paschal Full Moon, and true Time of EASTER.

THIS is only finding the next Full Moon after the Sun's Entrance into Aries or the Vernal Equinox, (which was evidently the Time the *Nicene Council* intended it to have been celebrated) and by applying that Time to the Calendar, find the Sunday, after which is *Easter Day*.

If the Full Moon falls on a Sunday, that Sunday is *Easter Day*.

R U L E.

FIND by former Examples, the Time of the Sun's Entrance into the Vernal Equinox, in the Year requir'd; then find the Time of Full Moon in *March* for that Year, if it be after the Time of the Sun's Entrance into Aries, you have your Desire; if before, add a whole Lunation to that Time, and it gives you the Paschal Full Moon; after that find the Dominical Letter, and the Sunday upon, or after the Paschal Full Moon, is the Day sought.

EXAMPLE LXV.

When did the Paschal Full Moon happen, in the Year of Christ 1698, and what Time ought *Easter* to have been celebrated.

Find the Year of Bissextile, by dividing by 4

4)1698(2d after Leap Year

424

Take

Take out the Anticipation of the Equinoxes from Table
V. for

	Days.	Hours.	Min.	Sec.
1000	7	16	10	0
600	4	14	30	0
90		16	34	30
7		1	17	21
1697 Years	13	0	31	51

The Anticipation substracted from the Radix, for the
second after Leap Year.

	Days.	Hours.	Min.	Sec.
Radix <i>March</i>	23	3	10	34
Anticipation	13	0	31	51
Sun in Aries <i>March</i>	10	2	38	43

gives the Time of the Sun's Entrance into the Vernal E-
quinox, to be *March* 10th, at two in the Morning.

Then find what Time it was full Moon in *March* 1698
4713

Year of the *Julian* Period 6411

Take out of Table XV. the Epacts.

	Days.	Hours.	Min.
Radix	19	2	
6000	5	5	39
400	12	3	52
10	20	17	41
6410			
February in a com- mon Year	29	11	15

	86	16	27
Cast off two Lunations	59	1	28
	27	14	59

This

(70)

This Remainder or Moon's Age, the last Day of *February* as it's more than a Full Moon, subtract it from a Lunation and a half, and it gives you the Day in *March* the Full Moon happen'd.

	Days.	Hours.	Min.
One and a Half Lunation	44	7	6
Moon's Age last Day of <i>February</i> }	27	14	59
Full Moon <i>March</i>	16th	16	7

That is on *March* the 16th, at 4 in the Afternoon, which being after the Time of the Sun's Entrance into *Aries*, is the Paschal Full Moon sought.

Find the Dominical Letter.

28/6411(228

56

81

56

251

224

Cycle of the Sun

27

Look in Table I. and even with the Cycle of the Sun 27, is the Dominical Letter B. Enter the Calendar with B, and even with the 16th, in the Month of *March*, is w, for Wednesday, the Sunday following being the 20th, should have been *Easter* Sunday.

EXAMPLE LXVI.

What Time did *Easter* happen in the Year of our Lord 400.

Find the Year of Bissextile.

4)400(0 Leap Year.

100

Find

(71)

Find the Sun's Entrance into *Aries*.

Years.		Days.	Hours.	Min.	Sec.
300	Anticipation	2	7	15	0
90			16	34	30
9			1	39	27
<u>399</u>		<u>3</u>	<u>1</u>	<u>28</u>	<u>57</u>

	Days.	Hours.	Min.	Sec.
Radix for L. Year, <i>March</i>	22	15	10	34
Anticipation	3	1	28	57
Sun enter'd <i>Aries March</i>	19	13	41	37

Find the full Moon for *March* in the Year of our Lord 400.

	400
	<u>4713</u>
Year of the <i>Julian</i> Period.	5113
Radix	Days. Hours. Min.
5000	19 2
100	19 3 5
12	25 4 31
<u>5112</u>	<u>12 11 20</u>
<i>February</i> in Leap Year	0 22 31

Cast off two Lunations	76 19 27
	<u>59 1 28</u>

Age of the Moon last Day in } *February*. 17 17 59

Subtract the Remainder from a Lunation and a Half.

	Days. Hours. Min.
Remainder	44 7 6
	<u>17 17 59</u>
Full Moon <i>March</i>	<u>26 13 7</u>

It gives *March* the 26th, which, as it's after the Ver-
nal Equinox, is the Paschal full Moon. Find

(72)

Find the Dominical Letters.

28)5113(182

28

231

224

73

56

Solar Cycle

17

Dominical Letters according to Table I. are A. G.

Enter the Calendar, and in the Column G. in the Month of *March* even with the 26th, you find m for Monday; the Sunday after is the first of *April*, which was Easter Day that Year.

For a Proof, find the Golden Number.

19)5113(269

38

131

114

173

171

Golden Number

2

Enter the Paschal Table Number 4. with the Dominical Letter G. and even with the Golden Number 2, you find *April* the first for Easter Day.

EXAMPLE LXVII.

What Time was Easter celebrated in the Year of Christ 325.

Find the Year of Bissextile.

4)325(1st after Leap Year.

81

Take

(73)

Take out the Anticipation to find the *Vernal Equinox*.

	Days.	Hours.	Min.	Sec.
300	2	7	15	0
20	—	3	41	—
4	—	—	44	12
324	2	11	40	12
Radix for the first after Leap Year	22	21	10	34
Anticipation substract	2	11	40	12
Sun enter'd <i>Aries</i> , <i>March</i>	20	9	30	22

Find the Full Moon for *March*, in the Year of our Lord 325.

325	4713
Year of the <i>Julian Period</i>	5038

Take out the Epacts.

	Days.	Hours.	Min.
Radix	19	2	—
5000	19	3	5
20	10	22	39
17	8	13	48
5037	29	11	15
February in a com- mon Year	87	4	47
Cast off two Lunations	59	1	28
Age of the Moon the last Day of <i>February</i>	28	3	19

Subtract the Remainder from a Lunation and a Half,
and it gives the Time of Full Moon in *March*.

G

One

(74)

	Days.	Hours.	Min.
One and a Half Lunation	44	7	6
	28	3	19
Full Moon <i>March</i>	16	3	47

This full Moon happen'd before the Vernal Equinox, so can't be the Paschal full Moon, to find which, add a Lunation to the foregoing Time, and it gives you the the Paschal full Moon.

	Days.	Hours.	Min.
<i>March</i>	16	3	47
One Lunation	29	12	44
	45	16	31
Cast off 31 Days for <i>March</i>	31		
Full Moon <i>April</i>	14	16	31

The Time of Paschal Full Moon is *April* 14th.

Find the Dominical Letters.

28)5038)179

28

223

196

278

252

Cycle of the Sun

26

The Cycle of the Sun being 26, the Dominical Letter by Table I. is C.

Enter the Calendar with C, and even with the 14th of *April* you find w. for Wednesday, the Sunday after which was Easter Day was the 18th. For

(75)

For a Proof find the Golden Number.

19)5038(265

38

123

114

98

95

Golden Number

3

Enter Table IV. with the Dominical Letter C, and even with the Golden Number 3, you'll find Easter Day to be *April 18th*.

EXAMPLE LXVIII.

Easter Day is requir'd for the Year of our Lord 326.

Find the Year of Bissextile.

4)326(2d after Leap Year.

81

Find the Time of the Vernal Equinox.

Years

300

20

5

325

Anticipation

2

11

51

15

Days. Hours. Min. Sec.

Radix for the 2d after

Leap Year.

23

31

10

34

Anticipation

2

11

51

15

San enter'd Aries *March 20*

15

19

19

G 2

Find

Let-
th of
after
For

(76)

Find the Full Moon for *March* in the Year of our Lord
326.

326

4713

Julian Period

5039

Take out the Epacts.

		Days.	Hours.	Min.
	<i>Radix</i>	19	2	
5000		19	3	5
20		10	22	39
18		19	5	0
5038	<i>Feb. in a common Year</i>	29	11	15
		97	19	59
	<i>Cast off three Lunations</i>	88	14	12
	<i>Age of the Moon the last Day in February.</i>	9	5	47

	Days.	Hours.	Min.
<i>Half a Lunation</i>	14	18	22
<i>Remainder</i>	9	5	47
<i>Full Moon March</i>	5th	12	35

This full Moon, as it's before the Vernal Equinox,
can't be the Paschal full Moon, to find which, add a Luna-
tion to this Time, and it gives you the Paschal full Moon.

	Days.	Hours.	Min.
<i>March</i>	5	12	35
<i>A Lunation</i>	29	12	44
	35	1	19
<i>Take off 31 Days for March</i>	31		
<i>April</i>	4	1	19

The mean Time of Paschal full Moon happen'd in
the Night betwixt the 3d and 4th of *April*. Find

(77)

Find the Dominical Letter.

28)5039(179

28

223

196

279

252

Cycle of the Sun

27 Dominical Letter B.

Find the Golden Number.

19)5039(265

38

123

114

99

95

Golden Number

4

In the Paschal Table even with the Golden Number 4, in the Column B, you find *April 3d* for Easter Sunday. This was the Year after they had settled it, and though the full Moon happen'd late of Sunday Night, or rather on Monday Morning, as the mean Time of full Moon is *April 4th* at One in the Morning, yet by the Table they celebrated it on Sunday *April the 3d*, which sufficiently proves that Note in our Common Prayer Book to be false, viz. if full Moon happens of a Sunday, Easter Day to be the Sunday after.

Dr. Wallis in his Letter to Sir John Blencowe, of May the 14th, 1698, concerning the Observation of Easter, supposes this Note to have been inserted through Mistake.

It certainly was either through Mistake or Ignorance. I find it to have been first introduc'd into our Common

G 3

Prayer

Prayer Books in the Year 1664, when a New Edition was printed by *John Bill*, and *Christopher Barker*; nor did this Note, at its first Appearance, pass unregarded, for *Sir George Wharton*, at that Time, prov'd it to be erroneous, notwithstanding which it has since continued.

EXAMPLE LXIX.

What Time did the Paschal full Moon happen in the Year of our Lord 1747, and what Time ought Easter to have been celebrated.

4) 1747 (3d after Leap Year

436

Find the Time of the Vernal Equinox.

	Days.	Hours.	Min.	Sec.
1000	7	16	10	0
700	5	8	55	0
40	0	7	22	0
6	0	1	6	18
1746 Anticipation	13	9	33	18

Subtract this from the Radix for the 3d after Leap Year.

	Days.	Hours.	Min.	Sec.
Radix	23	9	10	34
Anticipation	13	9	33	18
Sun enter'd Aries March	9	23	37	16

Proceed to find the Full Moon in March 1747

4713

Year of the Julian Period 6460

Take

(79)

Take out the Epacts.

	Days.	Hours.	Min.
Radix	19	2	
6000	5	5	39
400	12	3	52
40	21	21	18
19	0	7	27
6459 Feb. in a common Year	29	11	15
	88	3	31
Cast off two Lunations	59	1	28
	29	2	3

Subtract this Remainder from a Lunation and a half.

	Days.	Hours.	Min.
One and a Half Lunation	44	7	6
Remainder	29	2	3
Full Moon March	15th	5	3

As this Full Moon is after the Vernal Equinox, it proves to be the Paschal Full Moon; it likewise happened of a Sunday, so should have been *Easter Day*, but how widely it differ'd from the Time we did celebrate *Easter* this Year, which was on *April 19th*.

EXAMPLE LXX.

What Time should *Easter* have been celebrated in the Year of Christ 1748.

4)1748(0 Leap Year

437

Find

(80)

Find the Time of the Vernal Equinox.

	Days.	Hours.	Min.	Sec.
1000	7	16	10	0
700	5	8	55	0
40	0	7	22	0
7	0	1	17	21
1747 Anticipation	13	9	44	21

Subtract this from the Radix for Leap Year.

	Days.	Hours.	Min.	Sec.
Anticipation	22	15	10	34
	13	9	44	21
Vernal Equinox March	9th	5	26	13

Find the Full Moon in March

1748
4713

Year of the Julian Period

6461

Take out the Epacts

	Days.	Hours.	Min.
Radix	19	2	
6000	5	5	39
400	12	3	52
60	3	7	13
	39	18	44
6460			
February in Leap Year	0	22	31

Cast off one Lunation

40	17	15
29	12	44
11	4	31

Subtract

Subtract the Remainder from half a Lunation.

	Days.	Hours.	Min.
	14	18	22
Remainder	11	4	31
Full Moon <i>March</i>	3	13	51

This Full Moon happening before the Vernal Equinox, can't be the Paschal Full Moon; to find which, add a Lunation to this last Time, and it gives you the Paschal Full Moon.

	Days.	Hours.	Min.
One Lunation	29	12	44
<i>March</i>	3	13	51
Cast off 31 Days for <i>March</i>	33	2	35
Full Moon <i>April</i>	2	2	35

Find the Dominical Letters.

28)6461(230

56

86

84

Cycle of the Sun

21 Dominical Letters C. B.

Enter the Calendar with B, and even with the Second Day is sa, for Saturday, the next Day being the first Sunday after the first Full Moon, that happened next after the Vernal Equinox, shou'd have been *Easter Sunday*.

EXAMPLE LXXI.

What Time does the Paschal Full Moon happen, in the Year of our Lord 1749.

4)1749(1st after Leap Year

437

Find

Find the Time of the Vernal Equinox.

	Days.	Hours.	Min.	Sec.
1000	7	16	10	0
700	5	8	55	0
40	0	7	22	0
8	0	1	28	24
1748 Anticipation	43	9	55	24

	Days.	Hours.	Min.	Sec.
Radix for the first after Leap Year Anticipation	22	21	10	34
	13	9	55	24
Vernal Equinox March	9	11	15	10

Find the Full Moon in March 1749

47¹³

Year of the Julian Period

6462

	Days.	Hours.	Min.
Years Radix	19	2	—
6000	5	5	39
400	12	3	52
60	3	7	13
1	11	15	11
6461 February in a common Year	29	11	15
	80	21	10
Cast off two Lunations	59	1	28
Moon's Age last Day of February	21	19	42
One and a half Lunation	44	7	6
Remainder	21	19	42
Paschal Full Moon March	22	11	24

Find

(83)

Find the Dominical Letter.

28)6462(230

56

86

84

Cycle of the Sun

22

Dominical Letter A.

Enter the Calendar with A. and you'll find the 22d of *March* falls on a Wednesday, the Sunday after being the 26th is *Easter Day*.

This Year we shall celebrate *Easter* according to the Rule and Intention of the *Nicene Council*; for by the Table it happens on *March* the 26th.

E X A M P L E LXXII.

What Time ought *Easter* to be celebrated in the Year of *Christ* 1750?

4)1750(2d after Leap Year.

437

Find the Vernal Equinox.

		Days.	Hours.	Min.	Sec.
1000		7	16	10	—
700		5	8	55	—
40		—	7	22	—
9		—	1	39	27
1749	Anticipation	13	10	6	27
Radix for the second	}	23	3	10	34
after Leap Year					
Anticipation		13	10	6	27
Vernal Equinox	<i>March</i>	9	17	4	7

Find

(84)

Find the Full Moon in *March* 1750.

4713

Year of the *Julian Period*

6463

		Days.	Hours.	Min.
Years	Radix	19	2	—
6000		5	5	39
400		12	3	52
60		3	7	13
2		22	6	22
—	February in a com- mon Year	29	11	15
6462		91	12	21
—	Cast off three Lunations	88	14	12
		2	22	9
	Half a Luration	14	18	22
	Remainder	2	22	9
	Paschal Full Moon <i>March</i>	11	20	13

Find the Dominical Letter.

28)6463(230

56

86

84

Cycle of the Sun 23 Dominical Letter G.

Enter the Calendar with the Dominical Letter G, where you find *March* the 11th happens of a Sunday this Year, so should be *Easter* Day, yet without an Alteration, it won't be celebrated till *April* 15th.

OF

Of ECLIPSES.

THE Sun, the Earth and its Shadow, are always in a Line, and by the Earth's annual Motion round the Sun, form a Circle in the Heavens, call'd the Ecliptic; by reason, if the Moon happens to be in this Line at its Full or Change, there will then be an Eclipse: At the Change or Time of New Moon, it is an Eclipse of the Sun, the Moon being in the Ecliptic Line, betwixt the Sun and the Earth, intercepts some of the Sun's Light from falling upon the Earth; when at Full it is an Eclipse of the Moon, the Moon being in the Ecliptic Line of the Shadow of the Earth, is hinder'd from receiving its Light from the Sun; now had the Motion of the Moon been correspondent with the Plane of the Ecliptic, there would have been an Eclipse every Full and Change of the Moon; but Astronomers have prov'd, that in its Way round the Earth it cuts the Ecliptic Line and passes 5 Degrees North, as likewise 5 Degrees South of this Line, so can't cause an Eclipse, but when the Intersection of the Ecliptic Line happens at the Full or Change of the Moon; the Points of Intersection are call'd the Nodes of the Moon: The Eclipses have, however, their Period, consisting of 223 Lunations, which is call'd the *Chaldean Saros*; after which Time it is found, that the Eclipses come round again in the Order they did the *Saros* before. This is the Foundation of Table XVII, which is a Round of Ecliptic Lunations in a *Chaldean Saros*. There may be two Eclipses in one Lunation; the first of the Sun at the Time of New Moon, or Beginning of a Lunation; the other of the Moon at the Full of the Moon, or Middle of the Lunation.

The Quantity of an Eclipse, as likewise the Places where visible, I shall leave to Astronomers who study the Motions of the Luminaries, as we do the Time in which those Motions are made.

*To find the ECLIPSES by the Chal-
dean Saros.*

R U L E.

TAKE out of Table XV. with the Radix, the Lunations and Epacts for the Time propos'd, adding to the Lunations as many as are contain'd in the Epacts; divide that Sum by 223, and the Remainder will be the current Lunation in the *Chaldean Saros*, which by Table XVII. you will know if it be an Ecliptic one.

Note: The Time of New Moon, is the Time of an Eclipse of the Sun, as Full Moon is the Time of an Eclipse of the Moon.

E X A M P L E LXXIII.

It is required, if there was an Eclipse of the Sun in *January*, in the Year of Christ 1513.

Year of our Lord given	1513
Years elaps'd add	4713

Year of the <i>Julian</i> Period	6226
----------------------------------	------

Take out of Table XV. the Lunations and Epacts.

Years	Radix Lunations	Days. Hours. Min.		
		19	2	0
6000	74211	5	5	39
200	2473	20	20	18
20	247	10	22	39
5	61	25	15	12
6225		81	17	48
	2 Lunations	59	1	28
	76994	22	16	20

Divide

(87)

Divide the Number of Lunations by 223, and the Remainder will give you the current Lunation in a *Chaldean Saros*.

223)76994(345

669

1009

892

1174

1115

Remainder

59

By this you find, that in the last Day of the Year of the *Julian Period* 6225, there was 22 Days, 16 Hours, 20 Minutes gone, in the 59th Lunation of a *Chaldean Saros*; so to find New Moon in *January*, subtract the Moon's Age from a Lunation, and it gives the Time of the next new Moon.

		Days. Hours. Min.		
Lunation				
1		29	12	44
59	Age of the Moon the End of the preceding Month }	22	16	20
60	New Moon <i>January</i>	6th	20	24

So that on *January* 6th, at eight at Night, the Moon enter'd the 60th Lunation of a *Chaldean Saros*, and by Table XVII. this was no Eclipse.

EXAMPLE LXXIV.

It is requir'd if there was an Eclipse of the Moon in *February*, in the Year of Christ 1747.

Find the Year of Bissextile.

4)1747(3d after Leap Year

436

H 2

Find

(88)

Find the Year of the *Julian* Period

1747

4713

6460

Take out the Lunations and Epacts.

	Radix Lunations	Days.	Hours.	Min.
Years		19	2	0
6000	74211	5	5	39
400	4947	12	3	52
40	494	21	21	18
19	235	0	7	27
6459	Jan. in a com- mon Year } 1	1	11	15
		60	3	31
2 Lunations		59	1	28
79890		1	2	3

Divide the Lunations by a *Chaldean* *Saros*.

223)79890(358

669

1299

1115

1840

1784

Current Lunation 56

You find that on the last Day of *January* the Moon was

Day. Hours. Min.
1 2 3 gone, in the 56th Lunation of a *Chaldean* *Saros*; so to find Full Moon, subtract that Remainder from half a Lunation, and you have the Time sought.

Days.

(89)

	Days.	Hours.	Min.
Half a Lunation	14	18	22
56 Age of the Moon last Day of Jan.	1	2	3
56 and a half; Full Moon Feb.	13	16	19

Look in Table XVII, and you'll find that the Full Moon of the 56th Lunation is Ecliptic, and this Year it happen'd in the Night, betwixt the 13th and 14th of February.

EXAMPLE LXXV.

What Eclipses will there happen, in the Year of our Lord 1750.

Find the Year of Bisflextile.

4)1750(2d after Leap Year.

437

Find the corresponding Year in the Julian Period.

1750

4713

Year of the Julian Period 6463

Take out the Lunations and Epacts.

	Radix	Days.	Hours.	Min.
Years	Lunations	19	2	0
6000	74211	5	5	39
400	4947	12	3	52
60	742	3	7	13
2	24	22	6	22
6462		62	1	6
	2 Lunations	59	1	28
	79926	2	23	38
	H 2			Divide

(90)

Divide the Lunations by a *Chaldean* Saros.

223)79926(358

669

1302

1115

1876

1784

Current Lunation

92 in a *Chaldean* Saros.

The Moon's Age at the End of the preceding Year you find to be 2 Days, 23 Hours, 38 Minutes, gone in the 92d Lunation of a *Chaldean* Saros.

Enter Table XVII. to find what Lunations are Ecliptic, and you'll observe the 92d was an Eclipse of the Sun, but this had happen'd at the Beginning of the Lunation, 2 or 3 Days before the Year commenc'd, so doth not belong to the Question. The next to this is an Eclipse of the Moon at the full of the 97th Lunation.

Lunations Days. Hours. Min.

Beginning of the Year 92 2 23 38

May in a common Year 5 3 8 19

97 6 7 57

On the last Day of *May* the Moon was 6 Days, 7 Hours, 57 Minutes gone of the 97th Lunation, so to find full Moon subtract this from half a Lunation.

Days. Hours. Min.

Half a Lunation

14 18 22

97

6 7 57

97 and a Half ; Full Moon *June* 8 10 25

The First is an Eclipse of the Moon *June* the 8th, about 10 in the Morning.

In

In Table XVII. you likewise find that the 98th Lunation is an Eclipse of the Sun, which is only half a Lunation from the full Moon of the 97th.

	Days.	Hours.	Min.
97 and a Half happen'd <i>June</i>	8	10	25
Half a Lunation	14	18	22
98 <i>June</i>	23	4	47

The second is an Eclipse of the Sun *June* the 23d, about 4 in the Morning. You likewise find that the 103d Lunation is ecliptic; at the Beginning is an Eclipse of the Sun, at full an Eclipse of the Moon, to find which proceed as before.

	Lunations.	Days.	Hours.	Min.
Beginning of the Year	92	2	23	38
<i>October</i> in a common Year	10	8	16	39
	102	11	16	17

At the End of *October* there is 11 Days, 16 Hours, 17 Minutes gone of the 102d Lunation; to find the next new Moon, subtract this Remainder from a Lunation, and it gives you the Day in *November* new Moon happen'd.

	Days.	Hours.	Min.
1 Lunation	29	12	44
102	11	16	17
103d began <i>November</i>	17th	20	27

The third Eclipse by this appears to be of the Sun *November* 17th, about 8 at Night.

To find the next full Moon, which is an ecliptic one, add half a Lunation to the above, and it gives you the Time.

Lunations

(92)

Lunation.		Days.	Hours.	Min.
103	<i>November</i>	17	20	27
Half a Lunation		14	18	22
		32	14	49
Take off 30 Days for <i>November</i>		30		
		2	14	49
103 and a Half happen'd <i>December</i>		2	14	49

The 4th is an Eclipse of the Moon *December* the 2d, about two in the Afternoon.

You likewise find by the Table, that at the next new Moon is an Eclipse of the Sun, to find which, you must add Half a Lunation to the Time of the last full Moon.

	Days.	Hours.	Min.
103 and a half happen'd <i>December</i>	2	14	49
Half a Lunation	14	18	22
104th began <i>December</i>	17th	9	11

Thus you find the 5th and last Eclipse to be of the Sun *December* 17th, about 9 in the Morning.

EXAMPLE LXXVI.

What Eclipses will there happen in the Year of our Lord 1800.

4)1800(Leap Year

450

1800

4713

Year of the *Julian* Period

6513

Days,

Years.	Lunations,	Radix	Days.	Hours.	Mins
			19	2	0
6000	74211		5	5	39
500	6184		7	19	39
12	148		12	11	20
6512			44	14	38
		1 Lutation	29	12	44
	223)80544(361		15	1	54
	669				
	1364				
	1338				
	264				
	223				
	41		15	1	54

By Table XVII, you find, that 44 and a half, 45, 50 and a half, 51 Lunations in the *Chaldean Saros* are ecliptic, to find which, proceed as follows.

	Lunations.	Days.	Hours.	Min.
Last Day of the preceding } Year	41	15	1	54
February in a Leap Year	2	0	22	31
	43	16	—	25

Subtract this Moon's Age from a Lutation and a half.

Lunations.	Days.	Hours.	Min.
1 and a half	44	7	6
43	16	—	25
44 and a half happen'd March	28	6	41

The first Eclipse is of the Moon March 28th, about 6 in the Morning.

Laft

	Lunations.	Days.	Hours.	Min.
Last Day of the preceding Year	41	15	1	54
<i>March</i> in Leap Year	3	2	9	47
	44	17	11	41
	1	29	12	44
End of <i>March</i>	44	17	11	41
	45	<i>April</i> 12	1	3

The second is an Eclipse of the Sun, *April* the 12th about One in the Morning.

	Lunations.	Days.	Hours.	Min.
Last Day of the preceding Year	41	15	1	54
<i>August</i> in a Leap Year	8	7	18	7
	49	22	20	1
Lunations.				
1 and a half	44	7	6	
Moon's Age } 49	22	20	1	
End of <i>Aug.</i>				
50 and a half <i>Sept.</i>	21	11	5	

The third is an Eclipse of the Moon *September* the 21st about Noon.

Lunations.			
50 and a half <i>Sept.</i>	21	11	5
Half a Lunation	14	18	22
	36	5	27
Cast off 30 Days for <i>September</i>	30		
	51	<i>October</i>	6 5 27

The fourth and last is an Eclipse of the Sun, *October* the 6th. about 5 in the Morning.

What

What was said before of the Difference between the mean Time of Full and New Moons, and the apparent One must likewise be consider'd in the Times of these Eclipses, we not pretending here to give the exact Time they happen, but only shew which Lunations are ecliptic and which not.

Though the Eclipses come round again in a *Chaldean Saros*, or Round of 223 Lunations, yet it is found that the Quantity is not the same; this Difference in a Number of Years shifts the Eclipse to the next Lunation, therefore this Manner of finding them can't be universal, only serving to compare Eclipses for 3 or 400 Years past, as likewise 3 or 400 Years to come; but that our Tables shou'd be more complete, I have added *Strauchius's* Method of finding them for the whole *Julian Period*, after adjusting it to the Meridian of *London* and to the common Manner of Reckoning from Midnight, beginning the Year in *January*.

The Reader will observe that in the Table for finding the Moon's Age I have form'd my Radix so as to give the current Day of the Month on which Full or new Moon happen'd; to do this I was oblig'd to fix my Radix the Day before the *Julian Period* began, which makes it constantly give the Age of the Moon at the Beginning of the last Day of any Year or Month preceding the Time sought; that subtracted from a Lunation gives the current Day the next New Moon falls on, and not the Time that is elaps'd in that Month, which would be one Day more than the current Time; as *January 1 Day 12 Hours* current, is *January the First* at Noon; this is only 12 Hours gone in that Year; but *January 1 Day 12 Hours* elaps'd would be the 2d Day at Noon, being a Day and a half gone in *January*.

Astronomers generally give the Time elaps'd, which, if our Readers think more proper, they must use the following Radixes.

Radix, or Age of the Moon at the Beginning of the <i>Julian Period</i> which will give the Time elaps'd in any Month that New or Full Moon falls on.	}	20	2
--	---	----	---

Radix

Radix to give the Time elaps'd, when the Equinox happens from the Beginning of the *Julian Period* reckon'd from Midnight the First of *January*.

	Days.	Hours.	Min.	Sec.
Leap Year	117	19	9	13
First after	117	1	9	13
Second after	117	7	9	13
Third after	117	13	9	13

Radix to give the Time elaps'd, when the *Vernal Equinox* happens for the Years from Christ, reckon'd from Midnight *January* the First.

	Days.	Hours.	Min.	Sec.
Leap Year <i>March</i>	21	15	10	34
First after	21	21	10	34
Second after	22	3	10	34
Third after	22	9	10	34

If you use the foregoing Radix to find the New Moon, it will give you the Age of the Moon the Beginning of the Year, or Month requir'd; that subtracted from a Lunation will shew how many Days, Hours, &c. of that Month it will take to give the next Lunation or New Moon.

So likewise the Radix's for the Vernal Equinox, will give you the Days, Hours, and Minutes that are gone in the Month it happens in.

EXAMPLE LXXVII.

What Time will it be full Moon in *May* in the Year of our Lord 2418.

4)2418(2d after Leap Year.

604

2418

4713

Year of the *Julian Period*

7131

Radix

(97)

	Days.	Hours.	Min.
Radix to give the Time elaps'd	20	2	—
7000	20	20	58
100	25	4	31
20	10	22	39
10	20	17	41
7130 <i>April</i> in a common Year	1	21	3
Cast off three Lunations	99	16	52
	88	14	12
Age of the Moon Beginning of <i>May</i>	11	2	40
Half a Lunation	14	18	22
Age of the Moon Beginning of the Month	}	11	2
Time elapsed at Full Moon	3	15	42

The mean current Time of Full Moon is *May* the 4th
at 3 in the Afternoon.

EXAMPLE LXXVIII.

What Time will the Vernal Equinox happen in the
Year of the *Julian Period* 6780?

4)6779(3d after Leap Year			
1694			
Years.	Anticipation	Days.	Hours. Min. Sec.
6000		46	1 — —
700		5	8 55 —
70		—	12 3 52
9		—	1 39 27
6779		52	— 27 57
		I	Radix

(98)

	Days.	Hours.	Min.	Sec.
Radix for the third after Leap Year, to give the Time elapsed	117	13	9	13
Anticipation	52	—	27	57
	65	12	41	16
Cast off 59 Days to <i>March</i>	59	—	—	—
Time elapsed in <i>March</i>	6	12	41	16

The current mean Time of the *Vernal Equinox* is *March* the 7th, 41 Minutes 16 Seconds after Noon.

EXAMPLE LXXIX.

What Time will the *Vernal Equinox* happen, in the Year of Christ 1760

4)1760(0 Leap Year:

Years.	Days.	Hours.	Min.	Sec.
1000	7	16	10	—
700	5	8	55	—
50	—	9	12	30
9	—	1	39	27
1759	13	11	56	57
	Days.	Hours.	Min.	Sec.
Radix for Leap Year to give the Time elapsed	21	15	10	34
Anticipation	13	11	56	57
Days elapsed in <i>March</i>	8	3	13	37

Sun enters *Aries*, *March* the 9th, 13 Minutes 37 Seconds after 3 in the Morning, current Time.

Before we proceed any further it's proper to acquaint our Readers of the different Times of Beginning the Day and

and Year: The Civil Day throughout *Europe* begins the Moment 12 o'Clock at Night is past; the Mathematicians begin theirs from Noon; however they don't agree about the Beginning of the Year, some being 12 Hours after the Civil Account, as *Tycho Brahe* and others, for they reckon from Noon, the First of *January*; but the *English* Mathematicians and most of our Astronomical Tables are calculated from Noon, the last Day of *December*, so that these are 12 Hours before the Civil Account, and one Day before *Tycho's* Reckoning.

Nothing can equal the Folly of our having two Beginnings of the Year, One from *January*, (whence all the rest of *Europe* date their Civil Year) another from the *Annunciation*, on the 25th of *March*; but as I don't doubt this will be regulated very soon, that we may be so far consistent as all to begin the Year at the same Time, therefore shall take no further Notice of it, than to inform you, that our Tables are suited to the Meridian of *London*, reckoning from Midnight beginning the Year on the First of *January*.

Our Readers may, by altering the Radixes, bring their Time either from Noon or Midnight as they chuse. The following Radixes will bring the Time as they are mentioned.

Radix to give the Current Day of the Month that New or Full Moon falls on, to be reckoned from Noon the last Day of <i>December</i>	}	Days.	Hours.
		18	14

Radix to give the Days elapsed in any Month that New or Full Moon falls on, to be reckoned from Noon the last Day of <i>December</i>	}	Days.	Hours.
		19	14

Radix to give the Current Day of the Month that New or Full Moon happens on, to be reckon'd from Noon, the First of <i>January</i>	}	Days.	Hours.
		19	14

Radix to give the Days elapsed in any Month that New or Full Moon falls on, to be reckon'd from Noon the First of <i>January</i>	}	Days.	Hours.
		20	14

RADIXES to find the VERNAL EQUINOX.

RADIX to give the Current Day of the Month that the *Vernal Equinox* happens on, to be reckon'd from Noon the last Day of *December* for the Years from the Beginning of the *Julian Period*.

	Days.	Hours.	Min.	Sec.
Leap Year	119	7	9	13
First after	118	13	9	13
Second after	118	19	9	13
Third after	119	1	9	13

Radix to give the Days elapsed at the Time of the *Vernal Equinox*, to be reckon'd from Noon the last Day of *December*, for the Years in the *Julian Period*.

	Days.	Hours.	Min.	Sec.
Leap Year	118	7	9	13
First after	117	13	9	13
Second after	117	19	9	13
Third after	118	1	9	13

Radix to give the Current Day of the Month that the *Vernal Equinox* happens on, to be reckon'd from Noon the First of *January*.

	Days.	Hours.	Min.	Sec.
Leap Year	118	7	9	13
First after	117	13	9	13
Second after	117	19	9	13
Third after	118	1	9	13

Radix to give the Days elapsed at the Time of the *Vernal Equinox*, to be reckon'd from Noon the First of *January*, for the Years in the *Julian Period*.

	Days.	Hours.	Min.	Sec.
Leap Year	117	7	9	13
First after	116	13	9	13
Second after	116	19	9	13
Third after	117	1	9	13

Radix

Radix to give the Current Day of the Month that the Vernal Equinox happens on, to be reckon'd from Noon the last Day of *December*, for the Years since Christ.

	Days.	Hours.	Min.	Sec.
Leap Year, <i>March</i>	23	3	10	34
First after	23	9	10	34
Second after	23	15	10	34
Third after	23	21	10	34

Radix to give the Days elaps'd at the Time of the Vernal Equinox, to be reckoned from Noon the last Day of *December*, for the Years since Christ.

	Days.	Hours.	Min.	Sec.
Leap Year, <i>March</i>	22	3	10	34
First after	22	9	10	34
Second after	22	15	10	34
Third after	22	21	10	34

Radix to give the current Day of the Month that the Vernal Equinox happens on, to be reckoned from Noon the first of *January*, for the Years since Christ.

	Days.	Hours.	Min.	Sec.
Leap Year, <i>March</i>	22	3	10	34
First after	22	9	10	34
Second after	22	15	10	34
Third after	22	21	10	34

Radix to give the Days elaps'd at the Time of the Vernal Equinox, to be reckoned from Noon the first of *January*, for the Years since Christ.

	Days.	Hours.	Min.	Sec.
Leap Year <i>March</i>	21	3	10	34
First after	21	9	10	34
Second after	21	15	10	34
Third after	21	21	10	34

To find the *Eclipses* in the *Julian Period*, by the Mean Motions of the *Moon* and *Node*.

TO know if a Lunation be Ecliptic, find when the Full or New Moon happens in the Lunation propos'd; after that, take out of Tables XVIII, XIX, XX, and XXI, the Mean Motions of the Moon and Node for that Time, adding the Radix to this Sum, if the Remainder when every 12 Signs are cast off, come within the Limits of Table XXII. there will then be an Eclipse; the

nearer the Remainder is to the Center 0° , 0° , 0° , or 6 Signs, the greater the Eclipse will be.

Astronomers divide the Ecliptic Line into twelve Parts, call'd Signs, mark'd in the Tables with S, each Sign contains 30 Degrees mark'd $^\circ$, each Degree 60 Minutes or Firsts mark'd $'$, each First 60 Seconds mark'd $''$, each Second 60 Thirds mark'd $'''$, and so in adding Signs, Degrees, Firsts, Seconds, Thirds, you must for every 60 Thirds, carry one Second; for every 60 Seconds, carry one Minute; for every 60 Minutes, one Degree; for every 30 Degrees, one Sign; and cast off every 12 Signs, for a Revolution or whole Circle of the Ecliptic.

EXAMPLE LXXX.

It is requir'd, if there was an Eclipse of the Moon in *March*, in the Year of the *Julian Period* 4710.

Find the Year of Bissextile, by subtracting one and dividing by 4.

4710

1

4)4709(1ft after Leap Year.

1177

Find

Find the Full Moon in MARCH.

		Days.	Hours.	Min.
Radix to give the Time elaps'd } reckoned from Midnight		20	2	
4000		3	11	46
700		28	15	57
9		10	2	30
4709				

February in a common Year	29	11	15
---------------------------	----	----	----

Cast off 3 Lunations

91	19	28
88	14	12

Age of the Moon begin-
ning of MARCH }

3	5	16
---	---	----

Half a Lunation

Days. Hours. Min.

Age of the Moon beginning of March

14	18	22
3	5	16

Time elaps'd in MARCH when }
Full Moon happen'd }

11	13	6
----	----	---

Take out of Tables XVIII, XIX, XX, and XXI, the
Mean Motions of the Moon and Node for this Time.

		S	°	'	''
Radix		4	19	30	18
4000		1	11	7	48
700		7	4	11	52
9		9	28	6	16
4709 Years					

February in a common Year

Days in MARCH 11

Hours 13

Minutes 6

2	0	31	53
4	25	31	22
	7	9	57
		3	18

Cast off two whole Circles

30	6	12	44
24			

6	6	12	44
---	---	----	----

After

After casting off as many Revolutions as the Sum contains, it appears, that at the Time of Full Moon the mean Motions of the Moon and Node were $6^{\circ} 12' 44''$. Enter Table XXII. where you'll find that this Full Moon was eclips'd, which by *Kepler* and *Petavius*, as likewise by *Whiston* in his Astronomical Lectures, is suppos'd to be the Eclipse mentioned by *Josephus*, to precede the Death of *Herod*; but *Scaliger* is of Opinion, that the Eclipse *Josephus* speaks of happen'd in *January*, in the Year of the *Julian Period* 4713. *Strauchius* joins with *Scaliger*, by reason the foregoing Eclipse was not considerable enough, as likewise not allowing sufficient Time for those Transactions, which the Historian mentions were done betwixt this Eclipse and the ensuing Passover.

E X A M P L E LXXXI.

It is sought if there was an Eclipse of the Moon in *January*, in the Year of the *Julian Period* 4713. Find the Full Moon in *January* in the Year of the *Julian Period* 4713.

	Days.	Hours.	Min.
Radix to give the Time elaps'd } reckon'd from Midnight.	20	2	
Years.			
4000	3	11	46
700	28	15	57
12	12	11	20
	64	17	3
Cast off two Lunations.	59	1	28
Age of the Moon beginning of } <i>January</i> .	5	15	35
Half a Luration.	14	18	22
Age of the Moon beginning of } <i>January</i> .	5	15	35
Time elaps'd in <i>January</i> when } Full Moon happen'd.	9	2	47
			Take

Take out of Tables XVIII, XIX, XX, and XXI, the mean Motions of the Moon and Node for this Time.

		S	°	′	″
Years.	Radix	4	19	30	18
4000		1	11	7	48
700		7	4	11	52
12		0	24	14	36
Days 9		3	29	3	51
Hours 2				6	9
Minutes 47				25	54
		5	29	40	28

At this Full Moon the mean Motions of the Moon and Node were 5 S 29 ° 40 ′ 28 ″ which by Table XXII. must have been a very considerable Eclipse, and in all Probability was that JOSEPHUS speaks of.

Note, in taking out the Motion of the Moon and Node for Hours, Minutes, and Seconds, the Reader will observe, that the Product is in Quality, what is even with the Time mark'd at the Top of the Table, as

	°	′	″
20 Hours produces	11	1	28
	1	11	11
20 Minutes produces	11	1	28
	11	11	11
20 Seconds produces	11	1	28

EXAMPLE LXXXII.

It is requir'd if there was an Eclipse of the Sun in MAY, in the Year before Christ 585.

First Year of Christ was the Year of the *Julian Period*.

From which take

4714

585

Corresponding Year in the *Julian Period*.

4129

Find

(106)

Find the Year of Bissextile.

4129
1

4)4128(Leap Year.

1032

Find the Full Moon in MAY in the Year of the *Julian Period* 4129.Radix to give the Days elaps'd, }
reckon'd from Midnight.

Years.

4000

100

20

8

April in Leap Year.

20 2 0

3 11 46

25 4 31

10 22 39

28 0 2

2 21 3

Cast off three Lunations,

90 14 1

88 14 12

Age of the Moon beginning of *May* 1 23 49

One Lunation 29 12 44

Age of the Moon beginning of *May* 1 23 49Time elaps'd in *May* when New }
Moon happen'd.

27 12 55

Take out the mean Motions of the Moon and Node for
this Time,

Years.

4000

100

20

8

April in Leap Year.Days in *May* 27

Hours 12

Minutes 55

Radix

S 0 1 11

4 19 30 18

1 11 7 48

2 22 1 42

5 10 24 20

4 16 9 42

5 10 45 6

11 27 11 32

6 36 53

0 30 19

0 4 20 0

Enter

Enter Table XXII. and you'll find the Place of the Moon and Node within the Limits, so this New Moon was eclipsed ; the mean current Time is *May* the 28th in the Afternoon.

This, by Sir *Iaac Newton* and others, is supposed to be the Eclipse mentioned by *Herodotus*, that happened during a Battle between the *Medes* and *Lydians*, and, as the same Historian says, was predicted by *Thales*.

EXAMPLE LXXXIII.

It is requir'd if there was an Eclipse of the Sun in *July*, in the Year of our Lord 1748.

Find the Year of Bissextile.

4)1748(0 Leap Year

437

Find the corresponding Year in the *Julian Period*.

1748

4713

Year of the *Julian Period*

6461

Find the Time of New Moon in *July*, in the Year of the *Julian Period* 6461.

Days. Hours. Min.

Radix to give the Days elapsed	20	2	—
Years.			
6000	5	5	39
400	12	3	52
60	3	7	13
6460	4	19	35
<i>June</i> in a Leap Year	4	19	35
	45	14	19
Cast off one Luration	29	12	44
Age of the Moon Beginning of <i>July</i>	16	1	35

One

(108)

	Days.	Hours.	Mins.
One Lunation	29	12	44
Age of the Moon Beginning of <i>July</i> 16	16	1	35
Time elapsed in <i>July</i> , when New Moon happened.	13	11	9

Take out the mean Motions of the Moon and Node for this Time.

Years.	Radix	S	0	1	11
6000		4	19	9	13
400		8	1	41	42
60		10	28	6	47
		4	1	13	1
6460	<i>June</i> in a Leap Year	8	7	44	31
Days in <i>July</i>	13	5	21	58	53
Hours	11	0	6	3	48
Minutes	9	0	0	4	57
5 26 23 57					

By Table XXII. this New Moon is ecliptic; the mean current Time of which happens *July* the 14th about 11 o'Clock in the Morning.

EXAMPLE LXXXIV.

It is required if there was an Eclipse of the Sun in *May* in the Year of Christ 1724.

Find the Year of Bissextile.

4)1724(0 Leap Year.

431

Find the corresponding Year in the *Julian Period*.

1724

4713

Year of the Julian Period

6437

Find

Find the New Noon in *May*, in the Year of the *Ju-*
lian Period 6437.

	Days.	Hours.	Min.
Radix to give the Time elapsed, reckoned from Midnight	20	2	—
Years.			
6000	5	5	39
400	12	3	52
20	10	22	39
16	26	11	21
6436 <i>April</i> in Leap Year	2	21	3
Cast off two Lunations	77	18	34
	59	1	28
Age of the Moon Beginning of <i>May</i>	18	17	6
One Lunation	29	12	44
Age of the Moon Beginning of <i>May</i>	18	17	6
Time elapsed in <i>May</i> , when New Moon happened	10	19	38

Take out the mean Motions of the Moon and Node
for this Time.

	Radix	S	°	1	11
Years.		4	19	30	18
6000		8	1	41	42
400		10	28	6	47
20		5	10	24	20
16		9	2	19	28
6436 <i>April</i> in Leap Year		5	10	45	6
Days in <i>May</i>	10	4	12	17	36
Hours	19	0	10	28	24
Minutes	38	0	0	20	56
		0	5	54	37

K

By

By Table XXII. this New Moon comes within the Limits, so was eclipsic; the mean current Time of which happen'd *May* the 11th about 7 in the Evening.

E X A M P L E LXXXV.

In Dr. *Mead's* Treatise concerning the Influence of the Sun and Moon upon human Bodies, translated by Dr. *Stack*, Page 69, is the following Passage: "What happened *January* the 21st 1693, was very surprizing, for the Moon having been eclipsed that Night, the greatest Part of the sick died about the very Hour of the Eclipse, and some were even struck with sudden Death." It is required to find this Eclipse.

Find the Year of the *Julian Period*. 1693
1347

Year of the Julian Period 6406

Find the Full Moon in *January* in the Year of the *Julian Period* 6406.

	Days.	Hours.	Min.
Radix to give the Time elapsed, reckoned from Midnight <i>January</i> the 1st.	20	2	—
Years.			
6000	5	5	39
400	12	3	52
5	25	15	12
6405	63	2	43
Cast off two Lunations	59	1	28
Age of the Moon Beginning of <i>Jan.</i>	4	1	15
Half a Lunation.	14	18	22
Age of the Moon Beginning of <i>Jan.</i>	4	1	15
Time elapsed in <i>January</i> when Full Moon happened	10	17	7
Finding			

Finding the mean current Time of Full Moon this Year to be *January* the 11th, at 5 in the Evening, you imagine you have mistook the Year, and that the Author began his Year from *March*, this would make it in 1694 according to the Calculations of our Tables, we beginning the Year in *January*; for which Time find the Full Moon.

	1694		
	4713		
Year of the <i>Julian Period</i>	6407		
	Days.	Hours.	Min.
Radix to give the Time elapsed	20	2	—
Years.			
6000	5	5	39
400	12	3	52
6	6	17	40
6406	44	5	11
Cast off one Lunation	29	12	55
Age of the Moon Beginning of <i>Jan.</i>	14	16	27
Half a Lunation	14	18	22
Age of the Moon beginning of <i>Jan.</i>	14	16	27
Time elaps'd in <i>January</i> , when Full Moon happen'd	} —	1	55

The mean current Time of Full Moon this Year is *January* the 1st at One in the Morning, so can't be the Time of the Eclipse mention'd: To solve this Difficulty we must observe it is a Quotation from *Ramazzini*, a Foreign Author, who must have begun his Year in *January* and have followed the New Stile Account, which then was 10 Days before Old Stile, this considered reduces the Time of Full Moon to *January* the 11th Old Stile.

Proceed to find if that Full Moon was eclipsed, by taking out the mean Motion of the Moon and Node for that Time.

Radix

Years.	Radix	S	o	l	u
6000		4	19	30	18
400		8	1	41	42
5		10	28	6	47
		1	20	1	24
Days	10	4	12	17	36
Hours	17	0	9	22	15
Minutes	7	0	0	3	51
		6	1	3	53

At this Full Moon was the Eclipse fought, the Mean current Time of which happen'd *January* the 11th, at five in the Evening.

Most English Readers, without some such Help as these Tables, wou'd neither have known the Day or Year that such Occurrence had happen on, for they wou'd have imagin'd it to have been *January* the 21st 1693-4, whereas it happen'd *January* the 11th 1692-3.

This Manner of finding Eclipses, may serve sufficiently true for Lunar ones, but Solar ones are not so certain, for it may happen that at sometimes it will not answer, in which Cases let Astronomers be consulted.

To find the Time of *Sun's* rising, for any Year in the *Julian* Period; Latitude *London*.

THE *Sun's* rising is set down in our Calendar, as agreeing with this Age, judging it more useful to fix the Root from this Time, than any other. If the Rising of the *Sun* be requir'd for any Year past, find what are the Number of Days of Anticipation out of Table V. for as many Years as are elaps'd from the Time given, to the Year of our Lord 1700, or to the Year of the *Julian* Period 6413. When you have found the Number of Days of Anticipation, *subtract* them from the Day of the given

Month given, and the Time of the Sun's rising in the Calendar that is even with the Day of the Month after such Substraction is made, will be the requir'd Time.

If the Time sought be after the above Root, proceed in the same Manner, only *add* such Number of Days of Anticipation to the given Time, and the Sun's rising in the Calendar, even with the Day of the Month, after such Addition is made, will be the Time sought.

EXAMPLE LXXXVI.

What Time did the Sun rise on the First of *January*, at the Beginning of the Christian EPOCH.

From the Birth of Christ to our Root is 1700 Years, for which Number take out the Anticipation.

Years	Days.	Hours.	Min.
1000	7	16	10
700	5	8	55
1700	13	1	5

Subtracting 13 Days from the First of *January*, it gives you the 19th of *December*, which shews that the Sun rose on the first of *January* then, at the Time it does now on the 19th of *December*, that is, about ten Minutes after eight.

EXAMPLE LXXXVII.

What Time did the Sun rise on *May-Day*, in the Year of the *Julian* Period 800.

Root	6413
Year given	800
	5613

From the Time given to our Root, is 5613 Years, for which Number take out the Anticipation.

K 3

Years

Years	Days.	Hours.	Min.
5000	38	8	50
600	4	14	30
10		1	50
3			33
5613	43	1	43

Subtracting 43, the Number of Days of Anticipation from *May-day*, you have the 19th of *March*, which shews you that the Sun rose on *May-day* that Year, at the Time it does now on the 19th of *March*, which is about forty-two Minutes after five.

EXAMPLE LXXXVIII.

What Time will the Sun rise on *Christmas-day*, in the Year of our Lord 3700.

Year given	3700
Root	1700
	2000

From our Root to the Year given, are 2000 Years, for which Number take out the Anticipation.

Years	Days.	Hours.	Min.
2000	15	8	20

As this is after our Root, you must *add* the Days of Anticipation, and it gives you *January* the 9th. The Sun rises on *January* the 9th, in our Calendar, about 50 Minutes after Seven, and that is the Time it will rise on *Christmas-day*, in the Year of our Lord 3700.

Of the COLURES.

THE Colures are great Circles drawn in the Heavens, at the Times of the Equinoxes and Solstices passing thro' the Poles of the Equator, and cutting the Ecliptic where the Sun is at those Times. The

The Tropical Year or Time that the Sun takes from one Vernal Colure to the next, consisting only of Days. Hours. Min. Sec.

365 5 48 57 and the Sidereal Year, or Time that the Sun takes in going from one Place in the Heavens, till it arrives at the same Place again, consisting Days. Hours. Min. Sec. II

of 365 6 9 14 30 it follows that the Colures must move backwards in the Heavens so far every Min. Sec. III

Year, as will take the Sun 20 17 30 of Time, according to mean Motion in reaching the Place in the Heavens, where the Colure was form'd the Year before. To illustrate it, we will suppose the Sun to be in a certain Place in the Heavens, at Mid-Day, on the 10th of *March*, and at that Time to intersect our Equator so form the Vernal Equinox and Vernal Colure; four Years after this, the Sun would shine on our Equator, *March* 10th, 15 Minutes, 48 Seconds, after Eleven in the Morning, but would not reach the Place in the Heavens where he was when the Colure was form'd four Years before, till 36 Minutes, 58 Seconds, after 12. In these four Years, the Colures have moved backwards from the *Julian* Year, 44 Minutes, 12 Seconds; and the Sidereal Year hath moved forwards, 36 Minutes, 58 Seconds; which makes the Colures to have mov'd on the whole, 1 Hour, 21 Minutes, 10 Seconds. From hence may be deduced a good Argument for retaining the *Julian* Account, as being a very good Mean between the Tropical and Sidereal Years.

To find the COLURES.

R U L E.

TAKE out of Table XXIV. the Precession of the Colures, for as many Years as are elaps'd from the Year given to the Year you are in, *add* these Number of Days &c. to the Time of the Vernal Equinox for the

the current Year, and the Product will give you the Time in that Year, when the Sun will be in the same Place in the Heavens that form'd the Colure the Year propos'd.

If you seek the Colure for any Time to come, you must *subtract* the Precession of the Colures from the Time of the Vernal Equinox for the current Year, and you have the Time in that Year when the Sun will be in the same Place, that will form the Colure the Year propos'd.

EXAMPLE LXXXIX.

In the Year of Christ 1748, it is required when the Sun was in that Place that form'd the Vernal Equinoctial Colure, at the Time of the *Argonautic Expedition*. Sir Isaac Newton, in his *Chronology*, Page 91. *fixes the Argonautic Expedition* 937 Years before the Birth of Christ, this Number added to the Years elaps'd since Christ

$$\begin{array}{r} 1747 \\ 937 \\ \hline 2684 \end{array}$$

makes it 2684 Years ago, for which Number, take out of Table XXIV. the Precession of the Colures.

Years.	Days.	Hours.	Min.	Sec.
2000	28	4	23	20
600	8	10	55	—
80	1	3	3	20
4	—	1	21	10
2684	37	19	42	50

Add

Days. Hours. Min. Sec.

Add the Precession of the Colures to the Time of the Vernal Equinox for the Year 1748, which by Example LXX. happen'd *March*

Precession of the Colures

9	5	26	13
---	---	----	----

37	19	42	50
----	----	----	----

47	1	9	3
----	---	---	---

Cast off 31 Days for *March* 31*April*

16th	1	9	3
------	---	---	---

On *April* 16th at One in the Morning in the Year of Christ 1748, the Sun was in that Place where the Vernal Colure was form'd at the Time of the *Argonautic Expedition*.

EXAMPLE XC.

In the Year of our Lord 1750 it is requir'd at what Time the Sun will be in that Place that form'd the Vernal Equinoctical Colure in *Eudoxus's* Time.

Eudoxus flourish'd in the Year before Christ 363
Years since

1749

 2112

For which Number take out of Table XXIV. the Precession of the Colures.

Years.	Days.	Hours.	Min.	Sec.
2000	28	4	23	20
100	1	9	49	10
10	—	3	22	55
2	—	—	40	35
2112 Precession of the Colures	29	18	16	—

Find

Find the Time of the Vernal Equinox.

4) 1750 (2d after Leap Year.

437

Take out of Table V. the Anticipation of the Equinoxes for 1749 Years.

Years.	Days.	Hours.	Min.	Sec.
1000	7	16	10	—
700	5	8	55	—
40	—	7	22	—
9	—	1	39	27
1749 Anticipation.	13	10	6	27

Subtract the Anticipation from the Radix for the second after Leap Year.

	Days.	Hours.	Min.	Sec.
Radix <i>March</i>	23	3	10	34
Anticipation	13	10	6	27
Sun in Aries <i>March</i>	9	17	4	7

To the Time of the Sun's Entrance into Aries, add the Precession of the Colures.

	Days.	Hours.	Min.	Sec.
Sun in Aries <i>March</i>	9	17	4	7
Precession of the Colures	29	18	16	0
Cast off 31 Days for <i>March</i>	39	11	20	7
<i>April</i>	8	11	20	7

On *April* 8th, 20 Minutes past 11 in the Morning, in the Year of Christ 1750, the Sun will be in that Place that form'd the Vernal Colure in *Eudoxus's* Time

EXAMPLE

EXAMPLE XCI.

In the Year of our Lord 1749, it is requir'd, when the Sun will be in that Place, that form'd the Vernal Colure, at the Beginning of the Christian Epocha.

Take out the Precession of the Colures.

Years.	Days.	Hours.	Min.	Sec.
1000	14	2	11	40
700	9	20	44	10
40	—	13	31	40
8	—	2	42	20
1748 Precession of the Colures	24	15	9	50

Find the Time of the Vernal Equinox.

4) 1749 (1st after Leap Year.

437

Take out of Table V. the Anticipation of the Equinoxes.

	Days.	Hours.	Min.	Sec.
1000	7	16	10	—
700	5	8	55	—
40	—	7	22	—
8	—	1	28	24
1748 Anticipation	13	9	55	24

Subtract the Anticipation from the Radix for the first after Leap Year.

Radix

(120)

	Days.	Hours.	Min.	Sec.
Radix	22	21	10	34
Anticipation	13	9	55	24
Sun in Aries <i>March</i>	9	11	15	10

Add the Precession of the Colures to the Time of the Sun's Entrance into Aries.

	Days.	Hours.	Min.	Sec.
Time of the Vernal Equinox	9	11	15	10
Precession of the Colures	24	15	9	50
Cast off 31 Days for <i>March</i>	34 31	2	25	0
<i>April</i>	3	2	25	—

On *April* the 3d at two in the Morning, the Sun will be in the same Place as form'd the Vernal Colure at the Birth of Christ.

EXAMPLE XCII.

In the Year of our Lord 1749, it is requir'd when the Sun will be in the same Place that will make the Vernal Colure in the Year of Christ

2000
1749
—
251

From the Year given to the Year sought is 251 Years, for which Number take out the Precession of the Colures.

Years.	Days.	Hours.	Min.	Sec.	T.
200	2	19	38	20	—
50	—	16	54	35	—
1	—	—	20	17	30
251	3	12	53	12	30

Precession

Find

Days. Hours. Min. Sec.

Find the Vernal Equinox
for this Year, which by
the last Example you
know to be *March*

9 11 15 10

As the Time sought is after the Year given, you
must *subtract* the Precession of the Colures from the
Time of the Vernal Equinox.

Days. Hours. Min. Sec. //

Sun in Aries *March* 9 11 15 10 —

Precession subtract 3 12 53 12 30

March 5 22 21 57 30

On *March* the 5th at 10 at Night in the Year of our
Lord 1749, the Sun will be in that Place that will form
the Vernal Colure in the Year of Christ 2000.

Of the SOLSTICES.

THE Solstices are those Points in the Ecliptic, when
the Sun is at the greatest Distance from our Equator,
and makes the longest or shortest Day to the Inhabitants
of this Globe. When North of the Equator it makes the
longest Day to all on the North Side, and with us is call'd
the Summer Solstice; when on the South Side the Equator
it makes the shortest Day to the Inhabitants on the North
Side, and is our Winter Solstice. Now as the Equinoxes or
Interfection of the Equator and Ecliptic move backwards in
the *Julian* Year, so must the Solstices at the same Rate,
which as shown before is 11 Minutes 3 Seconds per Annum.

The Reason is very obvious; for the tropical Year being
11 Minutes 3 Seconds less than the mean *Julian* Year,
and the *Julian* Year being our fix'd Standard of
L Time

Time, the Tropical Year must move backwards so much every Year as it is short of the reputed Measure ; and by Reason of our having only 365 Days for 3 Years, and 366 Days for the 4th; the same Irregularity attends the Solstices as the Equinoxes;—however by the Help of Radixes, they may be adjusted to the *Julian* Standard.

To find the SOLSTICES, as likewise the *Autumnal Equinox*, for any Year in the *Julian Period*.

R U L E.

TAKE out of Table V. the Anticipation for as many Years as are elaps'd since Christ. Subtract this Sum from the Radix answering to the Year you seek for, whether Leap Year, First, Second, or Third after, and you have the Time requir'd. Note, if the Time sought be before Christ, take out the Anticipation for as many Years as it is before Christ's Birth, and add such Number to the Radix for the Year you seek for, whether Leap Year, First, Second, or Third after.

Radixes for the Summer Solstice.

	Days.	Hours.	Min.	Sec.
Leap Year <i>June</i>	23	13	56	37
First after.	23	19	56	37
Second after.	24	1	56	37
Third after.	24	7	56	37

Radixes for the Autumnal Equinox.

	Days.	Hours.	Min.	Sec.
Leap Year <i>September</i>	25	3	24	4
First after	25	9	24	4
Second after	25	15	24	4
Third after	25	21	24	4

Radixes

Radixes for the Winter Solstice.

	Days.	Hours.	Min.	Sec.
Leap Year <i>December</i>	23	19	50	43
First after	24	1	50	43
Second after	24	7	50	43
Third after	24	13	50	43

EXAMPLE XCIII.

What Time does the Summer Solstice happen in the Year of our Lord 1780.

Find the Year of Biffextile.

4)1780(0 Leap Year.

445

Take out of Table V. the Anticipation for 1779 Years being the Number of Years elaps'd from the Beginning of the Christian Epocha to the Year sought.

Years.	Days.	Hours.	Min.	Sec.
1000	7	16	10	0
700	5	8	55	0
70	0	12	53	30
9	0	1	39	27
1779	13	15	37	57

Subtract the Anticipation from the Radix, answering to the current Year, which you find to be Leap Year.

Radix for the Summer Solstice.

	Days.	Hours.	Min.	Sec.
Leap Year, <i>June</i>	23	13	56	37
Anticipation subtract	13	15	37	57
<i>June</i>	9	22	18	40

The Time of Summer Solstice is *June* the 9th, after ten at Night.

EXAMPLE XCIV.

It is requir'd what Time the Summer Solstice happen'd
in the Year of the *Julian Period* 4519.

Find the Year of Bissextile, by subtracting 1, and divid-
ing by 4.

$$\begin{array}{r} 4519 \\ 1 \\ \hline \end{array}$$

4)4518(2d after Leap Year.

$$\begin{array}{r} 1129 \\ \hline \end{array}$$

Find how many Years before Christ.

The First Year of Christ was the } 4714	
Year of the <i>Julian Period</i> }	
Year given	4519
Years before Christ	195

For which Number take out of Table V. the Anticipation.

Years	Days.	Hours.	Min.	Sec.
100	0	18	25	0
90	0	16	34	30
5	0	0	55	15
195	1	11	54	45

As the Year sought is *before* Christ, by the Rule you
must *add* the Anticipation to the Radix for the current
Year, which you know to be the Second after Leap Year.

	Days.	Hours.	Min.	Sec.
Radix for the Summer Solstice } 24	1	56	37	
Second after Leap Year <i>June</i> }				
Anticipation <i>add</i>	1	11	54	45
	25	13	51	22
<i>June</i>				

The Time of the Summer Solstice 195 Years before
Christ, was *June* the 25th, at one in the Afternoon.

EXAMPLE

(125)

EXAMPLE XCV.

What Time will the Autumnal Equinox happen in the Year of our Lord 1893.

Find the Year of Bissextile.

4)1893(1st after Leap Year.

473

Take out of Table V. the Anticipation of the Equinoxes, for as many Years as are elaps'd since Christ.

Years	Days.	Hours.	Min.	Sec.
1000	7	16	10	0
800	6	3	20	0
90	0	16	34	30
2	0	0	22	6
1892	14	12	26	36

Subtract the Anticipation from the Radix for the First after Leap Year.

	Days.	Hours.	Min.	Sec.
Radix for the Autumnal Equinox, the First after Leap Year, <i>September</i>	25	9	24	4
Anticipation subtract	14	12	26	36
<i>September</i>	10	20	57	28

Sun enters the Autumnal Equinox *September* the 10th, at eight at Night.

EXAMPLE XCVI.

What Time did the Autumnal Equinox happen 700 Years before Christ.

Find the Year of the *Julian Period*.

First Year of Christ was the }
Year of the *Julian Period* } 4714
From which take 700

Year of the *Julian Period*
L 3

4014 Find

Find the Year of Biffextile, by subtracting 1, and dividing by 4.

4014

1

4)4013(1st after Leap Year.

1003

Take out of Table V. the Anticipation for as many Years as it was before Christ.

Years	Days.	Hours.	Min.	Sec.
700	5	8	55	0

As the Year sought was before Christ, you must add the Anticipation to the Radix for the current Year, which was the First after Leap Year.

	Days.	Hours.	Min.	Sec.
Radix for the Autumnal Equinox, the First after Leap Year <i>September</i>	25	9	24	4
Anticipation add	5	8	55	0
<i>September</i>	30	18	19	4

The Sun enter'd the Autumnal Equinox the Year propos'd on *September* the 30th, at six in the Evening.

EXAMPLE XCVII.

What Time does the Winter Solstice happen in the Year of our Lord 1750.

Find the Year of Biffextile.

4)1750(2d after Leap Year.

437

Take

Take out of Table V. the Anticipation for as many Years as are elaps'd, from the Beginning of Christ to the Year sought.

Years.	Days.	Hours.	Min.	Sec.
1000	7	16	10	0
700	5	8	55	0
40	0	7	22	0
9	0	1	39	27
1749	13	10	6	27

Subtract the Anticipation from the Radix, answering to the current Year, which is the second after Leap Year.

	Days.	Hours.	Min.	Sec.
Radix for the Winter Solstice the second after Leap Year, <i>December</i>	24	7	50	43
Anticipation subtract	13	10	6	27

December 10 21 44 16

The Time of the Winter Solstice, in the Year of our Lord 1750, is *December* the 10th, at nine at Night.

EXAMPLE XCVIII.

What Time did the Winter Solstice happen, the Year of the Passion, being the Year of our Lord 33.

Find the Year of Bissextile.

4)33(1st after Leap Year.

Take out of Table V. the Anticipation for as many Years as were elaps'd since Christ.

Years.	Days.	Hours.	Min.	Sec.
30	0	5	31	30
2	0	0	22	6
32	0	5	53	36
				Subtract

Subtract the Anticipation from the Radix, answering to the Year sought, which was the first after Leap Year.

	Days.	Hours.	Min.	Sec.
Radix for the Winter Sol- stice the first after Leap Year, <i>December</i>	24	1	50	43
Anticipation subtract	0	5	53	36
<i>December</i>	23	19	57	7

The Time of the Winter Solstice, the Year of the Passion, was *December* the 23d, at seven at Night.

EXAMPLE XCIX.

What Time did the Winter Solstice happen, in the Year of the *Julian Period* 4587.

Find the Year of Bissextile.

4587

I

4)4586(2d after Leap Year.

1146

Find how many Years before Christ.

First Year of Christ was the } Year of the <i>Julian Period</i> }	4714
Year given	4587
Years before Christ.	127

Take out of Table V. the Anticipation for as many Years as before Christ.

Years,	Days.	Hours.	Min.	Sec.
100	0	18	25	0
20	0	3	41	0
7	0	1	17	21
127	0	23	23	21

As

As the Year sought was before Christ, you must *add* the Anticipation to the Radix answering to the current Year, which is found to have been the second after Leap Year.

	Days.	Hours.	Min.	Sec.
Radix for the Winter Sol- stice, the second after Leap Year, <i>December</i>	24	7	50	43
Anticipation <i>add</i>	0	23	23	21
<i>December</i>	25	7	14	4

The Time of Winter Solstice 127 Years before Christ, was *December* the 25th at 7 in the Morning.

With the Help of these Tables we can call back past Ages, bring as it were the Field of Action before our Eyes, so be more enabled to judge of the Truth of Historians Descriptions, by comparing the Distances, and observing if they fill up the Spaces of Time justly.

Of the 500 Years ready calculated.

TO make these Tables of immediate Use, there are the Dominical Letters, Epact and Easter Day ready calculated for 500 Years, viz. from the Year of our Lord 1501, to 2000 inclusive, whose Use is as follows.

Enter the Months in the Calendar with the Dominical Letter that is even with the Year sought, and you have an Almanack for that Year. When there are two Dominical Letters it is then Leap Year, the first serves for *January* and *February*, the other for the rest of the Year.

EXAMPLE C.

What Day of the Month was the Second Sunday in *July* in the Year of our Lord 1501.

Even with 1501 is the Dominical Letter C, look in the

the Month *July*, and in the Column C you'll find the Second S to be even with the 11th Day of the Month.

EXAMPLE CI.

What Day of the Week will the 30th of *January* happen on in the Year of our Lord 1996.

Even with that Year of our Lord are the Dominical Letters A. G, enter *January* with A the first of the Dominical Letters, and in that Column even with the 30th, is m for Monday.

By the Epact, you have a ready Way of finding the Moon's Age exact enough for common Use.

R U L E.

Add the Epact and Day of the Month together, with the Sum for as many Months as you are past *March* inclusive; if such Sum exceeds 30, cast 30 off for a Month, and the Remainder is the Moon's Age.

For *January* you add the Epact and Day of the Month only; for *February* you add the Epact, Day of the Month, and the Number 2.

Note: You may reckon the Moon at full when 15 Days old, and the Quarters in Proportion.

EXAMPLE CII.

The Age of the Moon is requir'd for the 2d Day of *December* in the Year of our Lord 1750.

Even with this Year of our Lord is the Epact 3, to which add 2 for the Day of the Month, makes 5, and 10 (*December* being the 10th Month from *March* inclusive) makes the Moon's Age 15 Days or full Moon, at the Time requir'd.

EXAMPLE CIII.

The New Moon is requir'd for *February* in the Year of our Lord 1760.

Even

Even with the Year of our Lord given is the Epact 23, to which add 2 for the Month makes 25, so the New Moon will be about the 5th Day of the Month.

Knowing Easter Sunday by the Table of Moveable Feasts at the End of the Calendar, any other Moveable Feast is easily found.

EXAMPLE CIV.

What Time did Whit-Sunday happen in the Year of our Lord 1679.

Overagainst the Year of our Lord given, Easter-Day is *April* 20. In the Table of Moveable Feasts even with Easter-Day of *April* 20th, is *June* the 8th for Whit-Sunday, the Time requir'd.

EXAMPLE CV.

What Time will Ascension Day happen in the Year of our Lord 1901.

Even with that Year of our Lord is *April* 1st for Easter Sunday.

In the Table of Moveable Feasts overagainst Easter Day of *April* 1st, you have *May* the 10th, which will be Ascension Day that Year.

EXAMPLE CVI.

It is requir'd what Day of the Month the first Sunday after the 8th of *April* will happen on, in the Year of our Lord 1770.

Even with the Year of our Lord given is the Dominical Letter C. Enter the Calendar, and in the Month of *April* down the Column C, even with the 8th, you find th for Thursday, the Sunday after will be the 11th.

EXAMPLE CVII.

The Age of the Moon is requir'd for the 2d of *February* in the Year of our Lord 1754-5.

As

the Month *July*, and in the Column C you'll find the Second S to be even with the 11th Day of the Month.

EXAMPLE CI.

What Day of the Week will the 30th of *January* happen on in the Year of our Lord 1996.

Even with that Year of our Lord are the Dominical Letters A. G, enter *January* with A the first of the Dominical Letters, and in that Column even with the 30th, is m for Monday.

By the Epact, you have a ready Way of finding the Moon's Age exact enough for common Use.

R U L E.

Add the Epact and Day of the Month together, with the Sum for as many Months as you are past *March* inclusive; if such Sum exceeds 30, cast 30 off for a Month, and the Remainder is the Moon's Age.

For *January* you add the Epact and Day of the Month only; for *February* you add the Epact, Day of the Month, and the Number 2.

Note: You may reckon the Moon at full when 15 Days old, and the Quarters in Proportion.

EXAMPLE CII.

The Age of the Moon is requir'd for the 2d Day of *December* in the Year of our Lord 1750.

Even with this Year of our Lord is the Epact 3, to which add 2 for the Day of the Month, makes 5, and 10 (*December* being the 10th Month from *March* inclusive) makes the Moon's Age 15 Days or full Moon, at the Time requir'd.

EXAMPLE CIII.

The New Moon is requir'd for *February* in the Year of our Lord 1760.

Even

Even with the Year of our Lord given is the Epact 23, to which add 2 for the Month makes 25, so the New Moon will be about the 5th Day of the Month.

Knowing Easter Sunday by the Table of Moveable Feasts at the End of the Calendar, any other Moveable Feast is easily found.

EXAMPLE CIV.

What Time did Whit-Sunday happen in the Year of our Lord 1679.

Overagainst the Year of our Lord given, Easter-Day is *April* 20. In the Table of Moveable Feasts even with Easter-Day of *April* 20th, is *June* the 8th for Whit-Sunday, the Time requir'd.

EXAMPLE CV.

What Time will Ascension Day happen in the Year of our Lord 1901.

Even with that Year of our Lord is *April* 1st for Easter Sunday.

In the Table of Moveable Feasts overagainst Easter Day of *April* 1st, you have *May* the 10th, which will be Ascension Day that Year.

EXAMPLE CVI.

It is requir'd what Day of the Month the first Sunday after the 8th of *April* will happen on, in the Year of our Lord 1770.

Even with the Year of our Lord given is the Domical Letter C. Enter the Calendar, and in the Month of *April* down the Column C, even with the 8th, you find th for Thursday, the Sunday after will be the 11th.

EXAMPLE CVII.

The Age of the Moon is requir'd for the 2d of *February* in the Year of our Lord 1754-5.

As

As we begin the Year in our Tables the first of *January*, this must be reckon'd the Year of our Lord 1755.

Even with this Year you find the Epact 28, to which add 2 for the Month, and 2 for the Day of the Month, makes 32, cast off 30 for a Month, and you have the Moon's Age 2 Days at the Time requir'd.

EXAMPLE CVIII.

What Time will Ash Wednesday happen on, in the Year of our Lord 1760.

Even with 1760 you find Easter Day to be *March* the 26th. Enter the Table of Moveable Feasts, and overagainst Easter Day of *March* 26, you find Ash Wednesday to be *February* the 8th.

Now as the Year given is Leap Year, and the Feast sought happening in *February*, by a Note at the Bottom of the Table it must be one Day later, that is *February* the 9th.



THE
Dominical Letter
Epaet & Easter Day
 for every Year of
 THE XVI CENTURY

Years of our Lord	Domi- nical Letter	Epaet	Easter Day	
1501	C	11	April	11
1502	B	22	March	27
1503	A	3	April	16
1504	G F	14		7
1505	E	25	March	23
1506	D	6	April	12
1507	C	17		4
1508	B A	28		23
1509	G	9		8
1510	F	20	March	31
1511	E	1	April	20
1512	D C	12		11
1513	B	23	March	27
1514	A	4	April	16
1515	G	15		8
1516	F E	26	March	23
1517	D	7	April	12
1518	C	18		4
1519	B	29		24
1520	A G	11		8
1521	F	22	March	31
1522	E	3	April	20
1523	D	14		5
1524	C B	25	March	27
1525	A	6	April	16
1526	G	17		1
1527	F	28		21
1528	E D	9		12

B. Cole Sculp.^t

Years of our Lord	Domi- nical Letter	Epact	Easter Day	
1529	C	20	March	28
1530	B	1	April	17
1531	A	12		9
1532	G F	23	March	31
1533	E	4	April	13
1534	D	15		5
1535	C	26	March	28
1536	B A	7	April	16
1537	G	18		1
1538	F	29		21
1539	E	11		6
1540	D C	22	March	28
1541	B	3	April	17
1542	A	14		9
1543	G	25	March	25
1544	F E	6	April	13
1545	D	17		5
1546	C	28		25
1547	B	9		10
1548	A G	20		1
1549	F	1		21
1550	E	12		6
1551	D	23	March	29
1552	C B	4	April	17
1553	A	15		2
1554	G	26	March	25
1555	F	7	April	14
1556	E D	18		5
1557	C	29		18
1558	B	11		10
1559	A	22	March	26
1560	G F	3	April	14
1561	E	14		6
1562	D	25	March	29
1563	C	6	April	11
1564	B A	17		2

Years of our Lord	Domi- nical Letter	Epact	Easter Day	
1565	G	28		22
1566	F	9		14
1567	E	20	March	30
1568	D C	1	April	18
1569	B	12		10
1570	A	23	March	26
1571	G	4	April	15
1572	F E	15		6
1573	D	26	March	22
1574	C	7	April	11
1575	B	18		3
1576	A G	29		22
1577	F	11		7
1578	E	22	March	30
1579	D	3	April	19
1580	C B	14		3
1581	A	25	March	26
1582	G	6	April	15
1583	F	17	March	31
1584	E D	28	April	19
1585	C	9		11
1586	B	20		3
1587	A	1		16
1588	G F	12		7
1589	E	23	March	30
1590	D	4	April	19
1591	C	15		4
1592	B A	26	March	26
1593	G	7	April	15
1594	F	18	March	31
1595	E	29	April	20
1596	D C	11		11
1597	B	22	March	27
1598	A	3	April	16
1599	G	14		8
1600	F E	25	March	23

THE
Dominical Letter
Epact & Easter Day
 for every Year of
 THE XVII CENTURY

Years of our Lord	Domi- nical Letter	Epact.	Easter Day	
1601	D	6	April	12
1602	C	17		4
1603	B	28		24
1604	A G	9		8
1605	F	20	March	31
1606	E	1	April	20
1607	D	12		5
1608	C B	23	March	27
1609	A	4	April	16
1610	G	15		8
1611	F	26	March	24
1612	E D	7	April	12
1613	C	18		4
1614	B	29		24
1615	A	11		9
1616	G F	22	March	31
1617	E	3	April	20
1618	D	14		5
1619	C	25	March	28
1620	B A	6	April	16
1621	G	17		1
1622	F	28		21
1623	E	9		13
1624	D C	20	March	28
1625	B	1	April	17
1626	A	12		9
1627	G	23	March	25
1628	F E	4	April	13

Years of our Lord	Domi- nical Letter	Epact	Easter Day	
1629	D	15		5
1630	C	26	March	28
1631	B	7	April	10
1632	A	18		1
1633	G	29		21
1634	F	11		6
1635	D	22	March	29
1636	C	3	April	17
1637	B	14		9
1638	G	25	March	25
1639	F	6	April	14
1640	E	17		5
1641	D	28		25
1642	C	9		10
1643	B	20		2
1644	A	1		21
1645	G	12		6
1646	F	23	March	29
1647	D	4	April	18
1648	C	15		2
1649	B	26	March	25
1650	A	7	April	14
1651	G	18	March	30
1652	F	29	April	18
1653	D	11		10
1654	C	22	March	26
1655	B	3	April	15
1656	A	14		6
1657	G	25	March	29
1658	F	6	April	11
1659	D	17		3
1660	C	28		22
1661	B	9		14
1662	A	20	March	30
1663	G	1	April	19
1664	F	12		10

Years of our Lord	Domi- nical Letter	Epact	Easter Day	
1665	A	23	March	26
1666	G	4	April	15
1667	F	15		7
1668	E D	26	March	22
1669	C	7	April	11
1670	B	18		3
1671	A	29		23
1672	G F	11		7
1673	E	22	March	30
1674	D	3	April	19
1675	C	14		4
1676	B A	25	March	26
1677	G	6	April	15
1678	F	17	March	31
1679	E	28	April	20
1680	D C	9		11
1681	B	20		3
1682	A	1		16
1683	G	12		8
1684	F E	23	March	30
1685	D	4	April	19
1686	C	15		4
1687	B	26	March	27
1688	A G	7	April	15
1689	F	18	March	31
1690	E	29	April	20
1691	D	11		12
1692	C B	22	March	27
1693	A	3	April	16
1694	G	14		8
1695	F	25	March	24
1696	E D	6	April	12
1697	C	17		4
1698	B	28		24
1699	A	9		9
1700	G F	20	March	31

THE
Dominical Letter
Epacl & Easter Day
 for every Year of
 THE XVIII CENTURY

Years of our Lord	Dominical Letter	Epacl	Easter Day	
1701	E	1	April	20
1702	D	12		5
1703	C	23	March	28
1704	B A	4	April	16
1705	G	15	March	8
1706	F	26	March	24
1707	E	7	April	13
1708	D C	18		4
1709	B	29		24
1710	A	11		9
1711	G	22		1
1712	F E	3		20
1713	D	14		5
1714	C	25	March	28
1715	B	6	April	17
1716	A G	17		1
1717	F	28		21
1718	E	9		13
1719	D	20	March	29
1720	C B	1	April	17
1721	A	12		9
1722	G	23	March	25
1723	F	4	April	14
1724	E D	15		5
1725	C	26	March	28
1726	B	7	April	10
1727	A	18		2
1728	G F	29		21

Years of our Lord	Dom- nical Letter	Epact	Easter Day	
1729	E	11		6
1730	D	22	March	29
1731	C	3	April	18
1732	B A	14		9
1733	G	25	March	25
1734	F	6	April	14
1735	E	17		6
1736	D C	28		25
1737	B	9		10
1738	A	20		2
1739	G	1		22
1740	F E	12		6
1741	D	23	March	29
1742	C	4	April	18
1743	B	15		3
1744	A G	26	March	25
1745	F	7	April	14
1746	E	18	March	30
1747	D	29	April	19
1748	C B	11		10
1749	A	22	March	26
1750	G	3	April	15
1751	F	14		7
1752	E D	25	March	29
1753	C	6	April	11
1754	B	17		3
1755	A	28		23
1756	G F	9		14
1757	E	20	March	30
1758	D	1	April	19
1759	C	12		11
1760	B A	23	March	26
1761	G	4	April	15
1762	F	15		7
1763	E	26	March	23
1764	D C	7	April	11

Years of our Lord	Domi- nical Letter	Epact	Easter Day	
1765	B	18		3
1766	A	29		23
1767	G	11		8
1768	F	22	March	30
1769	D	3	April	19
1770	C	14		4
1771	B	25	March	27
1772	A	6	April	15
1773	F	17	March	31
1774	E	28	April	20
1775	D	9		12
1776	C	20		3
1777	A	1		16
1778	G	12		8
1779	F	23	March	31
1780	E	4	April	19
1781	C	15		4
1782	B	26	March	27
1783	A	7	April	16
1784	G	18	March	31
1785	E	29	April	20
1786	D	11		12
1787	C	22	March	28
1788	B	3	April	16
1789	A	14		8
1790	F	25	March	24
1791	E	6	April	13
1792	D	17		4
1793	C	28		24
1794	B	9		9
1795	A	20		1
1796	F	1		20
1797	E	12		5
1798	D	23	March	28
1799	C	14	April	17
1800	B	15		8

THE
Dominical Letter
Epact & Easter Day
 for every Year of
 THE XIX CENTURY

Years of our Lord	Domi- nical Letter	Epact	Easter Day	
1801	F	26	March	24
1802	E	7	April	13
1803	D	18		5
1804	C B	29		24
1805	A	11		9
1806	G	22		1
1807	F	3		14
1808	E D	14		5
1809	C	25	March	28
1810	B	6	April	17
1811	A	17		2
1812	G F	28		21
1813	E	9		13
1814	D	20	March	29
1815	C	1	April	18
1816	B A	12		9
1817	G	23	March	25
1818	F	4	April	14
1819	E	15		6
1820	D C	26	March	28
1821	B	7	April	10
1822	A	18		2
1823	G	29		22
1824	F E	11		6
1825	D	22	March	29
1826	C	3	April	18
1827	B	14		3
1828	A G	25	March	25

Years of our Lord	Domi- nical Letter	Epact	Easter Day	
1829	F	6	April	14
1830	E	17		6
1831	D	28		19
1832	C B	9		10
1833	A	20		2
1834	G	1		22
1835	F	12		7
1836	E D	23	March	20
1837	C B	4	April	18
1838	A	15		3
1839	G F	26	March	26
1840	E	7		14
1841	D	18		30
1842	C	29	April	19
1843	B A	11		11
1844	G	22	March	26
1845	F	3	April	15
1846	E	14		7
1847	D C	25	March	23
1848	B	6	April	11
1849	A	17		3
1850	G	28		23
1851	F	9		8
1852	E D	20	March	30
1853	C	1	April	19
1854	B	12		11
1855	A G	23	March	27
1856	F	4	April	15
1857	E	15		7
1858	D	26	March	23
1859	C B	7	April	12
1860	A	18		3
1861	G	29		23
1862	F	11	April	8
1863	E D	22	March	31
1864	C	3	April	19

Years of our Lord	Domi- nical Letter	Epact	Easter Day	
1865	C	14		4
1866	B	25	March	27
1867	A	6	April	16
1868	G F	17	March	31
1869	E	28	April	20
1870	D	9		12
1871	C	20	March	28
1872	B A	1		16
1873	G	12		8
1874	F	23	March	31
1875	E	4	April	13
1876	D C	15		4
1877	B	26	March	27
1878	A	7	April	16
1879	G	18		1
1880	F E	29		20
1881	D	11		12
1882	C	22	March	28
1883	B	3		17
1884	A G	14		8
1885	F	25	March	24
1886	E	6	April	13
1887	D	17		5
1888	C B	28		24
1889	A	9		9
1890	G	20		1
1891	F	1		21
1892	E D	12		5
1893	C	23	March	28
1894	B	4	April	17
1895	A	15		2
1896	G F	26	March	24
1897	E	7	April	13
1898	D	18		5
1899	C	29		18
1900	B A	11		9

THE
Dominical Letter
Epact & Easter Day
 for every Year of
 THE XX CENTURY

Years of our Lord	Domi- nical Letter	Epact	Easter Day	
1901	G	22	April	1
1902	F	3		14
1903	E	14		6
1904	D C	25	March	28
1905	B	6	April	17
1906	A	17		2
1907	G	28		22
1908	F E	9		13
1909	D	20	March	29
1910	C	1	April	18
1911	B	12		10
1912	A G	23	March	25
1913	F	4	April	14
1914	E	15		6
1915	D	26	March	22
1916	C B	7	April	10
1917	A	18		2
1918	G	29		22
1919	F	11		7
1920	E D	22	March	29
1921	C	3	April	18
1922	B	14		3
1923	A	25	March	26
1924	G F	6	April	14
1925	E	17		6
1926	D	28		19
1927	C	9		11
1928	B A	20		2

Years of our Lord	Domi- nical Letter	Epact	Easter Day	
1929	G	1		22
1930	F	12		7
1931	E	23	March	30
1932	D C	4	April	18
1933	B	15		3
1934	A	26	March	26
1935	G	7	April	15
1936	F E	18	March	30
1937	D	29	April	19
1938	C	11		11
1939	B	22	March	27
1940	A G	3	April	15
1941	F	14		7
1942	E	25	March	23
1943	D	6	April	12
1944	C B	17		3
1945	A	28		23
1946	G	9		8
1947	F	20	March	31
1948	E D	1	April	19
1949	C	12		11
1950	B	23	March	27
1951	A	4	April	16
1952	G F	15		7
1953	E	26	March	23
1954	D	7	April	12
1955	C	18		4
1956	B A	29		23
1957	G	11		8
1958	F	22	March	31
1959	E	3	April	20
1960	D C	14		4
1961	B	25	March	27
1962	A	6	April	16
1963	G	17		1
1964	F E	28		20

Years of our Lord	Domi- nical Letter	Epact	Easter Day	
1965	D	9		12
1966	C	20	March	28
1967	B	1	April	17
1968	A G	12		8
1969	F	23	March	31
1970	E	4	April	13
1971	D	15		5
1972	C B	26	March	27
1973	A	7	April	16
1974	G	18		1
1975	F	29		21
1976	E D	11		12
1977	C	22	March	28
1978	B	3	April	17
1979	A	14		9
1980	G F	25	March	24
1981	E	6	April	13
1982	D	17		5
1983	C	28		25
1984	B A	9		9
1985	G	20		1
1986	F	1		21
1987	E	12		6
1988	D C	23	March	28
1989	B	4	April	17
1990	A	15		2
1991	G	26	March	25
1992	F E	7	April	13
1993	D	18		5
1994	C	29		18
1995	B	11		10
1996	A G	22		1
1997	F	3		14
1998	E	14		6
1999	D	25	March	29
2000	C B	6	April	17

January. XXXI.

G	F	E	D	C	B	A	Day	Fixed Feasts
m	tu	w	th	fr	sa	S	1	CIRCUMCISION
tu	w	th	fr	sa	S	m	2	
w	th	fr	sa	S	m	tu	3	
th	fr	sa	S	m	tu	w	4	☀ rises 7.57.
fr	sa	S	m	tu	w	th	5	
sa	S	m	tu	w	th	fr	6	EPIPHANY.
S	m	tu	w	th	fr	sa	7	
m	tu	w	th	fr	sa	S	8	☀ rises 7.52.
tu	w	th	fr	sa	S	m	9	
w	th	fr	sa	S	m	tu	10	in 
th	fr	sa	S	m	tu	w	11	
fr	sa	S	m	tu	w	th	12	
sa	S	m	tu	w	th	fr	13	Hillary
S	m	tu	w	th	fr	sa	14	
m	tu	w	th	fr	sa	S	15	☀ rises 7.42.
tu	w	th	fr	sa	S	m	16	
w	th	fr	sa	S	m	tu	17	
th	fr	sa	S	m	tu	w	18	☀ rises 7.37.
fr	sa	S	m	tu	w	th	19	
sa	S	m	tu	w	th	fr	20	
S	m	tu	w	th	fr	sa	21	☀ rises 7.32.
m	tu	w	th	fr	sa	S	22	
tu	w	th	fr	sa	S	m	23	Term begin
w	th	fr	sa	S	m	tu	24	
th	fr	sa	S	m	tu	w	25	CONV. S. PAUL.
fr	sa	S	m	tu	w	th	26	
sa	S	m	tu	w	th	fr	27	☀ rises 7.22.
S	m	tu	w	th	fr	sa	28	
m	tu	w	th	fr	sa	S	29	
tu	w	th	fr	sa	S	m	30	K.C. MARTYR.
w	th	fr	sa	S	m	tu	31	☀ rises 7.14.

February XXVIII

G	F	E	D	C	B	A	Day	Fix'd Feasts
th	fr	sa	S	m	tu	w	1	
fr	sa	S	m	tu	w	th	2	PURIFIC.V.M
sa	S	m	tu	w	th	fr	3	
S	m	tu	w	th	fr	sa	4	☼ rises 7.7.
m	tu	w	th	fr	sa	S	5	
tu	w	th	fr	sa	S	m	6	☼ rises 7.4.
w	th	fr	sa	S	m	tu	7	
th	fr	sa	S	m	tu	w	8	☼ rises 7.0.
fr	sa	S	m	tu	w	th	9	in X.
sa	S	m	tu	w	th	fr	10	
S	m	tu	w	th	fr	sa	11	☼ rises 6.54
m	tu	w	th	fr	sa	S	12	Term ends
tu	w	th	fr	sa	S	m	13	
w	th	fr	sa	S	m	tu	14	Valentine.
th	fr	sa	S	m	tu	w	15	
fr	sa	S	m	tu	w	th	16	☼ rises 6.44.
sa	S	m	tu	w	th	fr	17	
S	m	tu	w	th	fr	sa	18	
m	tu	w	th	fr	sa	S	19	☼ rises 6.38.
tu	w	th	fr	sa	S	m	20	
w	th	fr	sa	S	m	tu	21	
th	fr	sa	S	m	tu	w	22	☼ rises 6.32.
fr	sa	S	m	tu	w	th	23	
sa	S	m	tu	w	th	fr	24	S. MATTHIAS.
S	m	tu	w	th	fr	sa	25	
m	tu	w	th	fr	sa	S	26	
tu	w	th	fr	sa	S	m	27	☼ rises 6.22.
w	th	fr	sa	S	m	tu	28	
th	fr	sa	S	m	tu	w	29	Leap Year.

March XXXI.

G	F	E	D	C	B	A		Fix'd Feasts
th	fr	sa	S	m	tu	w	1	S. David.
fr	sa	S	m	tu	w	th	2	
sa	S	m	tu	w	th	fr	3	 rises 6. 12.
S	m	tu	w	th	fr	sa	4	
m	tu	w	th	fr	sa	S	5	
tu	w	th	fr	sa	S	m	6	 rises 6. 06.
w	th	fr	sa	S	m	tu	7	
th	fr	sa	S	m	tu	w	8	
fr	sa	S	m	tu	w	th	9	 rises 6. 00.
sa	S	m	tu	w	th	fr	10	 in V.
S	m	tu	w	th	fr	sa	11	
m	tu	w	th	fr	sa	S	12	 rises 5. 54.
tu	w	th	fr	sa	S	m	13	
w	th	fr	sa	S	m	tu	14	
th	fr	sa	S	m	tu	w	15	 rises 5. 48
fr	sa	S	m	tu	w	th	16	
sa	S	m	tu	w	th	fr	17	
S	m	tu	w	th	fr	sa	18	 rises 5. 43.
m	tu	w	th	fr	sa	S	19	
tu	w	th	fr	sa	S	m	20	
w	th	fr	sa	S	m	tu	21	
th	fr	sa	S	m	tu	w	22	 rises 5. 35.
fr	sa	S	m	tu	w	th	23	
sa	S	m	tu	w	th	fr	24	
S	m	tu	w	th	fr	sa	25	LADY DAY.
m	tu	w	th	fr	sa	S	26	
tu	w	th	fr	sa	S	m	27	 rises 5. 25.
w	th	fr	sa	S	m	tu	28	
th	fr	sa	S	m	tu	w	29	
fr	sa	S	m	tu	w	th	30	 rises 5. 19.
sa	S	m	tu	w	th	fr	31	

April XXX.

G	F	E	D	C	B	A	² 2	Fix'd Feasts
S	m	tu	w	th	fr	sa	1	☼ rises 5. 15.
m	tu	w	th	fr	sa	S	2	
tu	w	th	fr	sa	S	m	3	
w	th	fr	sa	S	m	tu	4	☼ rises 5. 9.
th	fr	sa	S	m	tu	w	5	
fr	sa	S	m	tu	w	th	6	
sa	S	m	tu	w	th	fr	7	☼ rises 5. 4.
S	m	tu	w	th	fr	sa	8	
m	tu	w	th	fr	sa	S	9	☼ in 8.
tu	w	th	fr	sa	S	m	10	
w	th	fr	sa	S	m	tu	11	☼ rises 4. 57.
th	fr	sa	S	m	tu	w	12	
fr	sa	S	m	tu	w	th	13	
sa	S	m	tu	w	th	fr	14	☼ rises 4. 51.
S	m	tu	w	th	fr	sa	15	
m	tu	w	th	fr	sa	S	16	
tu	w	th	fr	sa	S	m	17	☼ rises 4. 46.
w	th	fr	sa	S	m	tu	18	
th	fr	sa	S	m	tu	w	19	
fr	sa	S	m	tu	w	th	20	☼ rises 4. 40.
sa	S	m	tu	w	th	fr	21	
S	m	tu	w	th	fr	sa	22	
m	tu	w	th	fr	sa	S	23	S. George.
tu	w	th	fr	sa	S	m	24	S. MARK.
w	th	fr	sa	S	m	tu	25	
th	fr	sa	S	m	tu	w	26	
fr	sa	S	m	tu	w	th	27	☼ rises 4. 29.
sa	S	m	tu	w	th	fr	28	
S	m	tu	w	th	fr	sa	29	
m	tu	w	th	fr	sa	S	30	☼ rises 4. 24.

Plan XXXI

G	F	E	D	C	B	A	^m 2	Fix'd Feasts
tu	w	th	fr	sa	S	m	1	S PHILIP &
w	th	fr	sa	S	m	tu	2	JAME S.
th	fr	sa	S	m	tu	w	3	
fr	sa	S	m	tu	w	th	4	☼ rises 4.18.
sa	S	m	tu	w	th	fr	5	
S	m	tu	w	th	fr	sa	6	
m	tu	w	th	fr	sa	S	7	☼ rises 4.13.
tu	w	th	fr	sa	S	m	8	
w	th	fr	sa	S	m	tu	9	
th	fr	sa	S	m	tu	w	10	in II.
fr	sa	S	m	tu	w	th	11	
sa	S	m	tu	w	th	fr	12	☼ rises 4.7.
S	m	tu	w	th	fr	sa	13	
m	tu	w	th	fr	sa	S	14	
tu	w	th	fr	sa	S	m	15	☼ rises 4.3.
w	th	fr	sa	S	m	tu	16	
th	fr	sa	S	m	tu	w	17	
fr	sa	S	m	tu	w	th	18	☼ rises 4.0.
sa	S	m	tu	w	th	fr	19	
S	m	tu	w	th	fr	sa	20	
m	tu	w	th	fr	sa	S	21	☼ rises 3.57.
tu	w	th	fr	sa	S	m	22	
w	th	fr	sa	S	m	tu	23	
th	fr	sa	S	m	tu	w	24	☼ rises 3.55.
fr	sa	S	m	tu	w	th	25	
sa	S	m	tu	w	th	fr	26	
S	m	tu	w	th	fr	sa	27	☼ rises 3.52.
m	tu	w	th	fr	sa	S	28	
tu	w	th	fr	sa	S	m	29	RESTORATION.
w	th	fr	sa	S	m	tu	30	
th	fr	sa	S	m	tu	w	31	

June XXX.

G	F	E	D	C	B	A	^{Mo} Day	Fix'd Feasts
fr	sa	S	m	tu	w	th	1	
sa	S	m	tu	w	th	fr	2	☼ rises 3.49.
S	m	tu	w	th	fr	sa	3	
m	tu	w	th	fr	sa	S	4	
tu	w	th	fr	sa	S	m	5	☼ rises 3.48.
w	th	fr	sa	S	m	tu	6	
th	fr	sa	S	m	tu	w	7	
fr	sa	S	m	tu	w	th	8	
sa	S	m	tu	w	th	fr	9	☼ rises 3.47.
S	m	tu	w	th	fr	sa	10	in 28.
m	tu	w	th	fr	sa	S	11	S. BARNABAS.
tu	w	th	fr	sa	S	m	12	
w	th	fr	sa	S	m	tu	13	
th	fr	sa	S	m	tu	w	14	☼ rises 3.48.
fr	sa	S	m	tu	w	th	15	
sa	S	m	tu	w	th	fr	16	
S	m	tu	w	th	fr	sa	17	S. Alban.
m	tu	w	th	fr	sa	S	18	
tu	w	th	fr	sa	S	m	19	☼ rises 3.49.
w	th	fr	sa	S	m	tu	20	
th	fr	sa	S	m	tu	w	21	
fr	sa	S	m	tu	w	th	22	☼ rises 3.51.
sa	S	m	tu	w	th	fr	23	
S	m	tu	w	th	fr	sa	24	S. JOHN BAPT.
m	tu	w	th	fr	sa	S	25	
tu	w	th	fr	sa	S	m	26	
w	th	fr	sa	S	m	tu	27	☼ rises 3.54.
th	fr	sa	S	m	tu	w	28	
fr	sa	S	m	tu	w	th	29	S. PETER.
sa	S	m	tu	w	th	fr	30	

July XXXI.

G	F	E	D	C	B	A		Fix'd Feasts
S	m	tu	w	th	fr	sa	1	 rises 3.58.
m	tu	w	th	fr	sa	S	2	
tu	w	th	fr	sa	S	m	3	 rises 4.00.
w	th	fr	sa	S	m	tu	4	
th	fr	sa	S	m	tu	w	5	
fr	sa	S	m	tu	w	th	6	 rises 4.03.
sa	S	m	tu	w	th	fr	7	
S	m	tu	w	th	fr	sa	8	
m	tu	w	th	fr	sa	S	9	 rises 4.06.
tu	w	th	fr	sa	S	m	10	
w	th	fr	sa	S	m	tu	11	
th	fr	sa	S	m	tu	w	12	 in ♀.
fr	sa	S	m	tu	w	th	13	
sa	S	m	tu	w	th	fr	14	
S	m	tu	w	th	fr	sa	15	S. Swithin
m	tu	w	th	fr	sa	S	16	 rises 4.16.
tu	w	th	fr	sa	S	m	17	
w	th	fr	sa	S	m	tu	18	Dog days beg.
th	fr	sa	S	m	tu	w	19	
fr	sa	S	m	tu	w	th	20	
sa	S	m	tu	w	th	fr	21	
S	m	tu	w	th	fr	sa	22	 rises 4.25.
m	tu	w	th	fr	sa	S	23	
tu	w	th	fr	sa	S	m	24	
w	th	fr	sa	S	m	tu	25	S. JAMES
th	fr	sa	S	m	tu	w	26	
fr	sa	S	m	tu	w	th	27	 rises 4.33.
sa	S	m	tu	w	th	fr	28	
S	m	tu	w	th	fr	sa	29	
m	tu	w	th	fr	sa	S	30	 rises 4.38.
tu	w	th	fr	sa	S	m	31	

August XXXI.

G	F	E	D	C	B	A	☾	Fix'd Feasts
w	th	fr	sa	S	m	tu	1	Lammās day.
th	fr	sa	S	m	tu	w	2	
fr	sa	S	m	tu	w	th	3	☼ rises 4.45.
sa	S	m	tu	w	th	fr	4	
S	m	tu	w	th	fr	sa	5	
m	tu	w	th	fr	sa	S	6	☼ rises 4.50.
tu	w	th	fr	sa	S	m	7	
w	th	fr	sa	S	m	tu	8	
th	fr	sa	S	m	tu	w	9	☼ rises 4.55.
fr	sa	S	m	tu	w	th	10	
sa	S	m	tu	w	th	fr	11	
S	m	tu	w	th	fr	sa	12	☼ in m.
m	tu	w	th	fr	sa	S	13	
tu	w	th	fr	sa	S	m	14	☼ rises 5.05.
w	th	fr	sa	S	m	tu	15	
th	fr	sa	S	m	tu	w	16	
fr	sa	S	m	tu	w	th	17	☼ rises 5.10.
sa	S	m	tu	w	th	fr	18	
S	m	tu	w	th	fr	sa	19	
m	tu	w	th	fr	sa	S	20	☼ rises 5.16.
tu	w	th	fr	sa	S	m	21	
w	th	fr	sa	S	m	tu	22	☼ rises 5.20.
th	fr	sa	S	m	tu	w	23	
fr	sa	S	m	tu	w	th	24	S. BARTHOL.
sa	S	m	tu	w	th	fr	25	
S	m	tu	w	th	fr	sa	26	☼ rises 5.27.
m	tu	w	th	fr	sa	S	27	Dog days end.
tu	w	th	fr	sa	S	m	28	
w	th	fr	sa	S	m	tu	29	☼ rises 5.33
th	fr	sa	S	m	tu	w	30	
fr	sa	S	m	tu	w	th	31	☼ rises 5.37.

September XXX.

G	F	E	D	C	B	A	Day	Fix'd Feasts
fa	S	m	tu	w	th	fr	1	
S	m	tu	w	th	fr	fa	2	LONDON
m	tu	w	th	fr	fa	S	3	burnt 1666.
tu	w	th	fr	fa	S	m	4	
w	th	fr	fa	S	m	tu	5	☼ rises 5.47.
th	fr	fa	S	m	tu	w	6	
fr	fa	S	m	tu	w	th	7	
fa	S	m	tu	w	th	fr	8	☼ rises 5.53.
S	m	tu	w	th	fr	fa	9	
m	tu	w	th	fr	fa	S	10	
tu	w	th	fr	fa	S	m	11	☼ rises 5.59.
w	th	fr	fa	S	m	tu	12	in ☿.
th	fr	fa	S	m	tu	w	13	
fr	fa	S	m	tu	w	th	14	Holy Cross
fa	S	m	tu	w	th	fr	15	
S	m	tu	w	th	fr	fa	16	☼ rises 6.9
m	tu	w	th	fr	fa	S	17	
tu	w	th	fr	fa	S	m	18	
w	th	fr	fa	S	m	tu	19	☼ rises 6.14.
th	fr	fa	S	m	tu	w	20	
fr	fa	S	m	tu	w	th	21	S. MATTHEW.
fa	S	m	tu	w	th	fr	22	
S	m	tu	w	th	fr	fa	23	☼ rises 6.22.
m	tu	w	th	fr	fa	S	24	
tu	w	th	fr	fa	S	m	25	
w	th	fr	fa	S	m	tu	26	☼ rises 6.28.
th	fr	fa	S	m	tu	w	27	
fr	fa	S	m	tu	w	th	28	
fa	S	m	tu	w	th	fr	29	S. MICHAEL.
S	m	tu	w	th	fr	fa	30	

October XXXI.

G	F	E	D	C	B	A	2	Fix'd Feasts
m	tu	w	th	fr	sa	S	1	☀ rises 6.38.
tu	w	th	fr	sa	S	m	2	
w	th	fr	sa	S	m	tu	3	
th	fr	sa	S	m	tu	w	4	☀ rises 6.44.
fr	sa	S	m	tu	w	th	5	
sa	S	m	tu	w	th	fr	6	
S	m	tu	w	th	fr	sa	7	☀ rises 6.50.
m	tu	w	th	fr	sa	S	8	
tu	w	th	fr	sa	S	m	9	
w	th	fr	sa	S	m	tu	10	☀ rises 6.56.
th	fr	sa	S	m	tu	w	11	
fr	sa	S	m	tu	w	th	12	☀ in III
sa	S	m	tu	w	th	fr	13	
S	m	tu	w	th	fr	sa	14	
m	tu	w	th	fr	sa	S	15	☀ rises 7.5.
tu	w	th	fr	sa	S	m	16	
w	th	fr	sa	S	m	tu	17	
th	fr	sa	S	m	tu	w	18	S. LUKE.
fr	sa	S	m	tu	w	th	19	
sa	S	m	tu	w	th	fr	20	
S	m	tu	w	th	fr	sa	21	☀ rises 7.16.
m	tu	w	th	fr	sa	S	22	
tu	w	th	fr	sa	S	m	23	Term begins.
w	th	fr	sa	S	m	tu	24	
th	fr	sa	S	m	tu	w	25	Crispin.
fr	sa	S	m	tu	w	th	26	☀ rises 7.25.
sa	S	m	tu	w	th	fr	27	
S	m	tu	w	th	fr	sa	28	S SIMON and
m	tu	w	th	fr	sa	S	29	JUDE.
tu	w	th	fr	sa	S	m	30	
w	th	fr	sa	S	m	tu	31	☀ rises 7.33.

November XXX.

G	F	E	D	C	B	A	2	Fixd Feasts
th	fr	sa	S	m	tu	w	1	ALL SAINTS.
fr	sa	S	m	tu	w	th	2	ALL SOULS.
sa	S	m	tu	w	th	fr	3	
S	m	tu	w	th	fr	sa	4	K.WILL. Born.
m	tu	w	th	fr	sa	S	5	POWDER Plot.
tu	w	th	fr	sa	S	m	6	
w	th	fr	sa	S	m	tu	7	 rises 7.44
th	fr	sa	S	m	tu	w	8	
fr	sa	S	m	tu	w	th	9	
sa	S	m	tu	w	th	fr	10	
S	m	tu	w	th	fr	sa	11	 in <i>Marin.</i>
m	tu	w	th	fr	sa	S	12	
tu	w	th	fr	sa	S	m	13	
w	th	fr	sa	S	m	tu	14	 rises 7.55.
th	fr	sa	S	m	tu	w	15	
fr	sa	S	m	tu	w	th	16	
sa	S	m	tu	w	th	fr	17	 rises 7.58.
S	m	tu	w	th	fr	sa	18	
m	tu	w	th	fr	sa	S	19	 rises 8.0.
tu	w	th	fr	sa	S	m	20	
w	th	fr	sa	S	m	tu	21	
th	fr	sa	S	m	tu	w	22	Cecilia.
fr	sa	S	m	tu	w	th	23	
sa	S	m	tu	w	th	fr	24	
S	m	tu	w	th	fr	sa	25	 rises 8.6.
m	tu	w	th	fr	sa	S	26	
tu	w	th	fr	sa	S	m	27	
w	th	fr	sa	S	m	tu	28	Term ends.
th	fr	sa	S	m	tu	w	29	
fr	sa	S	m	tu	w	th	30	S. ANDREW.

December XXXI.

G	F	E	D	C	B	A	^{Mo} Day	Fix'd Feasts
sa	S	m	tu	w	th	fr	1	<i>rises 8.10.</i>
S	m	tu	w	th	fr	sa	2	
m	tu	w	th	fr	sa	S	3	
tu	w	th	fr	sa	S	m	4	 <i>rises 8.12.</i>
w	th	fr	sa	S	m	tu	5	
th	fr	sa	S	m	tu	w	6	Nicholas
fr	sa	S	m	tu	w	th	7	
sa	S	m	tu	w	th	fr	8	
S	m	tu	w	th	fr	sa	9	 <i>rises 8.13.</i>
m	tu	w	th	fr	sa	S	10	
tu	w	th	fr	sa	S	m	11	 <i>in Vj.</i>
w	th	fr	sa	S	m	tu	12	
th	fr	sa	S	m	tu	w	13	Lucy.
fr	sa	S	m	tu	w	th	14	
sa	S	m	tu	w	th	fr	15	 <i>rises 8.12.</i>
S	m	tu	w	th	fr	sa	16	
m	tu	w	th	fr	sa	S	17	
tu	w	th	fr	sa	S	m	18	 <i>rises 8.11.</i>
w	th	fr	sa	S	m	tu	19	
th	fr	sa	S	m	tu	w	20	
fr	sa	S	m	tu	w	th	21	S. THOMAS
sa	S	m	tu	w	th	fr	22	
S	m	tu	w	th	fr	sa	23	 <i>rises 8. 8.</i>
m	tu	w	th	fr	sa	S	24	
tu	w	th	fr	sa	S	m	25	CHRISTMAS.
w	th	fr	sa	S	m	tu	26	S. STEPHEN.
th	fr	sa	S	m	tu	w	27	S. JOHN EVAN.
fr	sa	S	m	tu	w	th	28	INNOCENTS
sa	S	m	tu	w	th	fr	29	
S	m	tu	w	th	fr	sa	30	
m	tu	w	th	fr	sa	S	31	 <i>rises 8. 1.</i>

Moveable Feasts

EASTER DAY.	Septuag Sunday	Alh Wednesday.	Rogation Sunday	Ascension Day.
Mar 22	Jan 18	Feb 4	Apr 26	Apr 30
23	19	5	27	May 1
24	20	6	28	2
25	21	7	29	3
26	22	8	30	4
27	23	9	May 1	5
28	24	10	2	6
29	25	11	3	7
30	26	12	4	8
31	27	13	5	9
Apr 1	28	14	6	10
2	29	15	7	11
3	30	16	8	12
4	31	17	9	13
5 Feb 1	1	18	10	14
6	2	19	11	15
7	3	20	12	16
8	4	21	13	17
9	5	22	14	18
10	6	23	15	19
11	7	24	16	20
12	8	25	17	21
13	9	26	18	22
14	10	27	19	23
15	11	28	20	24
16	12	Mar 1	21	25
17	13	2	22	26
18	14	3	23	27
19	15	4	24	28
20	16	5	25	29
21	17	6	26	30
22	18	7	27	31
23	19	8	28	June 1
24	20	9	29	2
25	21	10	30	3

NOTE. That such Feasts as fall in Jan. or Feb. are every Leap Year One day later.

Moveable Feasts

WHIT SUNDAY	Easter Term beg	E. Term ends.	Trinity Term beg	In Term ends.
May 10	Apr 8	May 4	May 22	June 10
11	9	5	23	11
12	10	6	24	12
13	11	7	25	13
14	12	8	26	14
15	13	9	27	15
16	14	10	28	16
17	15	11	29	17
18	16	12	30	18
19	17	13	31	19
20	18	14	June 1	20
21	19	15	2	21
22	20	16	3	22
23	21	17	4	23
24	22	18	5	24
25	23	19	6	25
26	24	20	7	26
27	25	21	8	27
28	26	22	9	28
29	27	23	10	29
30	28	24	11	30
June 31	29	25	12	July 1
1	30	26	13	2
2	May 1	27	14	3
3	2	28	15	4
4	3	29	16	5
5	4	30	17	6
6	5	31	18	7
7	6	June 1	19	8
8	7	2	20	9
9	8	3	21	10
10	9	4	22	11
11	10	5	23	12
12	11	6	24	13
13	12	7	25	14

Advent Sunday is the Nearest Sunday to S.
Andrews day, whether it be before or after.

TABLE I

*Of the Cycle of the Sun
& Dominical Letters*

<i>Cycle Of the Sun</i>	<i>Dominical Letters</i>
1	G F
2	E
3	D
4	C
5	B A
6	G
7	F
8	E
9	D C
10	B
11	A
12	G
13	F E
14	D
15	C
16	B
17	A G
18	F
19	E
20	D
21	C B
22	A
23	G
24	F
25	E D
26	C
27	B
28	A

TABLE II

*Of the Golden Number
& Epacts*

<i>Golden Number</i>	<i>Epacts</i>
1	11
2	22
3	3
4	14
5	25
6	6
7	17
8	28
9	9
10	20
11	1
12	12
13	23
14	4
15	15
16	26
17	7
18	18
19	29

TABLE III

*The Cycle of the Sun The Golden
Number & the Roman Indiction
being given to find the Corresponding
Year in the Julian Period*

No	Cycle of the Sun	Golden Number	Roman Indiction
1	37	476	6916
2	114	420	5852
3	171	364	4788
4	228	308	3724
5	285	252	2660
6	342	196	1596
7	399	140	532
8	456	84	7448
9	513	28	6384
10	38	504	5320
11	95	448	4256
12	152	392	3192
13	209	336	2128
14	266	280	1064
15	323	224	7980
16	380	168	
17	437	112	
18	494	56	
19	19	532	
20	76		
21	133		
22	190		
23	247		
24	304		
25	361		
26	418		
27	475		
28	532		

TABLE IV
To find Easter.

<i>Golden Number</i>	A	B	C	D	E	F	G
1	Ap. 9	10	11	12	6	7	8
2	Mar 26	27	28	29	30	31	Apr. 1
3	Ap. 16	17	18	19	20	14	15
4	9	3	4	5	6	7	8
5	Mar 26	27	28	29	23	24	25
6	Ap. 16	17	11	12	13	14	15
7	2	3	4	5	6	Mar. 31	Apr. 1
8	23	24	25	19	20	21	22
9	9	10	11	12	13	14	8
10	2	3	Mar 28	29	30	31	Apr. 1
11	16	17	18	19	20	21	22
12	9	10	11	5	6	7	8
13	Mar 26	27	28	29	30	31	25
14	Ap. 16	17	18	19	13	14	15
15	2	3	4	5	6	7	8
16	Mar 26	27	28	22	23	24	25
17	Ap. 16	10	11	12	13	14	15
18	2	3	4	5	Mar 30	31	Apr. 1
19	23	24	18	19	20	21	22

TABLE V

Of the Anticipation of the Equinoxes

<i>Years</i>	<i>Days</i>	<i>Hours</i>	<i>Min.</i>	<i>Sec.^{ds}</i>	<i>Radix</i>
1			11	3	<i>From Midnight the beginning of January for the Years in the Julian Period</i>
2			22	6	
3			33	9	
4			44	12	
5			55	15	
6		1	6	18	
7		1	17	21	
8		1	28	24	
9		1	39	27	
10		1	50	30	
20		3	41		<i>D. H. M. S. 1st Year 118.19.913 1st after 118. 1. 913 2^d after 118. 7. 913 3^d after 118.13. 913</i>
30		5	31	30	
40		7	22		
50		9	12	30	
60		11	3		
70		12	53	30	
80		14	44		
90		16	34	30	
100		18	25		
200	1	12	50		<i>Radix from Christ reckoned from Midnight January y^e First</i>
300	2	7	15		
400	3	1	40		
500	3	20	5		
600	4	14	30		
700	5	8	55		
800	6	3	20		
900	6	21	45		
1000	7	16	10		
2000	15	8	20		<i>D. H. M. S. 1st Year Mar 22.15.1034 1st after 22.21.1034 2^d after 23. 3.1034 3^d after 23. 9.1034</i>
3000	23		30		
4000	30	16	40		
5000	38	8	50		
6000	46	1			
7000	53	17	10		
8000	61	9	20		
9000	69	1	30		
10000	76	17	40		

TABLE VI
The Gregorian
Dominical Letters
from the 15 of October
A.D. 1582 to A.D. 1699
inclusive.

<i>Cycle</i> <i>of the</i> <i>Sun</i>	<i>10 Days before the</i> <i>Julian Account</i>
1	C B
2	A
3	G
4	F
5	E D
6	C
7	B
8	A
9	G F
10	E
11	D
12	C
13	B A
14	G
15	F
16	E
17	D C
18	B
19	A
20	G
21	F E
22	D
23	C
24	B
25	A G
26	F
27	E
28	D

TABLE VII
The Gregorian
Dominical Letters
from A.D. 1701 to
A.D. 1799 inclusive.

<i>Cycle</i> <i>of the</i> <i>Sun</i>	<i>11 Days before the</i> <i>Julian Account</i>
	A.D. 1700 C
1	D C
2	B
3	A
4	G
5	F E
6	D
7	C
8	B
9	A G
10	F
11	E
12	D
13	C B
14	A
15	G
16	F
17	E D
18	C
19	B
20	A
21	G F
22	E
23	D
24	C
25	B A
26	G
27	F
28	E

TABLE VIII
The Gregorian
Dominical Letters
from A.D. 1801. to
A.D. 1899 inclusive.

12 Days before the
Julian Account

Cycle
of the Sun *A.D. 1800 &*

1	E	D
2		C
3		B
4		A
5	G	F
6		E
7		D
8		C
9	B	A
10		G
11		F
12		E
13	D	C
14		B
15		A
16		G
17	F	E
18		D
19		C
20		B
21	A	G
22		F
23		E
24		D
25	C	B
26		A
27		G
28		F

TABLE IX
The Gregorian
Dominical Letters
from A.D. 1901. to
A.D. 2099 inclusive.

13 Days before the
Julian Account

Cycle
of the Sun *A.D. 1900 &*

1	F	E
2		D
3		C
4		B
5	A	G
6		F
7		E
8		D
9	C	B
10		A
11		G
12		F
13	E	D
14		C
15		B
16		A
17	G	F
18		E
19		D
20		C
21	B	A
22		G
23		F
24		E
25	D	C
26		B
27		A
28		G

TABLE X
The Gregorian
Dominical Letters
from A.D. 2101. to
A.D. 2199 inclusive.

14 Days before the
 Julian Account

Cycle
 of the Sun A.D. 2100.6

1	G	F
2		E
3		D
4		C
5	B	A
6		G
7		F
8		E
9	D	C
10		B
11		A
12		G
13	F	E
14		D
15		C
16		B
17	A	G
18		F
19		E
20		D
21	C	B
22		A
23		G
24		F
25	E	D
26		C
27		B
28		A

TABLE XI
The Gregorian
Dominical Letters
from A.D. 2201. to
A.D. 2299 inclusive.

15 Days before the
 Julian Account

Cycle
 of the Sun A.D. 2200.6

1	A	G
2		F
3		E
4		D
5	C	B
6		A
7		G
8		F
9	E	D
10		C
11		B
12		A
13	G	F
14		E
15		D
16		C
17	B	A
18		G
19		F
20		E
21	D	C
22		B
23		A
24		G
25	F	E
26		D
27		C
28		B

TABLE XII
Of Tropical Years

<i>Years</i>	<i>Days</i>	<i>Hours</i>	<i>Min.</i>	<i>Sec.</i> ^a
1	365	5	48	57
2	730	11	37	54
3	1095	17	26	51
4	1460	23	15	48
5	1826	3	4	45
6	2191	10	53	42
7	2556	16	42	39
8	2921	22	31	36
9	3287	4	20	33
10	3652	10	9	30
11	4017	15	58	27
12	4382	21	47	24
13	4748	3	36	21
14	5113	9	25	18
15	5478	15	14	15
20	7304	20	19	0
30	10957	6	28	30
40	14609	16	38	
50	18262	2	47	30
60	21914	12	57	
70	25566	23	6	30
80	29219	9	16	
90	32871	19	25	30
100	36524	5	35	
200	73048	11	10	
300	109572	16	45	
400	146096	22	20	
500	182621	3	55	
600	219145	9	30	
700	255669	15	5	
800	292193	20	40	
900	328718	2	15	
1000	365242	7	50	
2000	730484	15	40	
3000	1095726	23	30	
4000	1460969	7	20	
5000	1826211	15	10	
6000	2191453	23		
7000	2556696	6	50	
8000	2921938	14	40	
9000	3287180	22	30	
10000	3652423	6	20	

TABLE XIII

Of Julian Mean Years.

Years	Days	Hours
1	365	6
2	730	12
3	1095	18
4	1461	0
5	1826	6
6	2191	12
7	2556	18
8	2922	0
9	3287	6
10	3652	12
20	7305	0
30	10957	12
40	14610	0
50	18262	12
60	21915	0
70	25567	12
80	29220	0
90	32872	12
100	36525	
200	73050	
300	109575	
400	146100	
500	182625	
600	219150	
700	255675	
800	292200	
900	328725	
1000	365250	
2000	730500	
3000	1095750	
4000	1461000	
5000	1826250	
6000	2191500	
7000	2556750	
8000	2922000	
9000	3287250	
10000	3652500	

TABLE XIV

Of Lunations.

<i>Lunations</i>	<i>Days</i>	<i>Hou.</i>	<i>Min.</i>	<i>Sec.</i> ^{ds}	<i>Th.</i> ^{ds}
1	29	12	44	3	9
2	59	1	28	6	18
3	88	14	12	9	27
4	118	2	56	12	36
5	147	15	40	15	45
6	177	4	24	18	54
7	206	17	8	22	3
8	236	6	52	25	12
9	265	18	36	28	21
10	295	7	20	31	30
20	590	14	41	3	
30	885	22	1	34	30
40	1181	5	22	6	
50	1476	12	42	37	30
60	1771	20	3	9	
70	2067	3	23	40	30
80	2362	10	44	12	0
90	2657	18	4	43	30
100	2953	1	25	15	
200	5906	2	50	30	
300	8859	4	15	45	
400	11812	5	41	0	
500	14765	7	6	15	
600	17718	8	31	30	
700	20671	9	56	45	
800	23624	11	22		
900	26577	12	47	15	
1000	29530	14	12	30	
2000	59061	4	25		
3000	88591	18	37	30	
4000	118122	8	50		
5000	147652	23	2	30	
6000	177183	13	15		
7000	206714	3	27	30	
8000	236244	17	40		
9000	265775	7	52	30	
10000	295305	22	5		
20000	590611	40	10		
30000	885917	18	15		
40000	1181223	16	20		
50000	1476529	14	25		
60000	1771835	12	30		
70000	2067141	10	35		
80000	2362447	8	40		
90000	2657753	6	45		
100000	2953059	4	50		

TABLE XV
Of Lunations & Epochs

Julian Years	Lunations	Days	Hour ^a	Min.	Sec. ^{da}	Th. ^{da}
	<i>Radix</i>	19	2			
1	12	11	15	11	22	12
2	24	22	6	22	44	24
3	37	3	8	50	3	27
4	49	14	0	1	25	39
5	61	25	15	12	47	51
6	74	6	17	40	6	54
7	86	17	8	51	29	6
8	98	28	0	2	51	18
9	111	10	2	30	10	21
10	123	20	17	41	32	33
11	136	1	20	8	51	36
12	148	12	11	20	13	48
13	160	24	2	31	36	0
14	173	5	4	58	55	3
15	185	15	20	10	17	15
16	197	26	11	21	39	27
17	210	8	13	48	58	30
18	222	19	5	0	20	42
19	235	0	7	27	39	45
20	247	10	22	39	1	57
40	494	21	21	18	3	54
60	742	3	7	13	2	42
80	989	14	5	52	4	39
100	1236	25	4	31	6	36
200	2473	20	20	18	10	3
300	3710	16	12	5	13	30
400	4947	12	3	52	16	57
500	6184	7	19	39	20	24
600	7421	3	11	26	23	51
700	8657	28	15	57	30	27
800	9894	24	7	44	33	54
900	11131	19	23	31	37	21
1000	12368	15	15	18	40	48
2000	24737	1	17	53	18	27
3000	37105	17	9	11	59	15
4000	49474	3	11	46	36	54
5000	61842	19	3	5	17	42
6000	74211	5	5	39	55	21
7000	86579	20	20	58	36	9
8000	98948	6	23	33	13	48

TABLE XVI
Lunations & Epochs
for the Months in a Common Year

Months	Lunations	Days	Hours	Min.	Sec.	Th. ^{da}
January	1	1	11	15	56	51
February	1	29	11	15	56	51
March	3	1	9	47	50	33
April	4	1	21	3	47	24
May	5	3	8	19	44	15
June	6	3	19	35	41	6
July	7	5	6	51	37	57
August	8	6	18	7	34	48
September	9	7	5	23	31	39
October	10	8	16	39	28	30
November	11	9	3	55	25	21
December	12	10	15	11	22	12

Leap Year

January	1	1	11	15	56	51
February	2	0	22	31	53	42
March	3	2	9	47	50	33
April	4	2	21	3	47	24
May	5	4	8	19	44	15
June	6	4	19	35	41	6
July	7	6	6	51	37	57
August	8	7	18	7	34	48
September	9	8	5	23	31	39
October	10	9	16	39	28	30
November	11	10	3	55	25	21
December	12	11	15	11	22	12

Parts of a Lunation

A Quarter	7	9	11	0	47
A Half	14	18	22	1	34
Three Quarters	22	3	33	2	22
One Lunation	29	12	44	3	9
One & a Half	44	7	6	4	44

TABLE XVII

The Ecliptic Situations in a Chaldean Year

N ^o	At New Moon or beginning of a Lunation	At Full Moon or Middle of Lunation	N ^o	At New Moon	At Full Moon
3		Moon	104	Sun	
4	Sun		109	Sun	Moon
9	Sun	Moon	115	Sun	Moon
10	Sun		121	Sun	
15	Sun	Moon	127	Sun	
16	Sun		132		Moon
21	Sun	Moon	133	Sun	
27	Sun	Moon	138		Moon
33	Sun		139	Sun	
39	Sun		144	Sun	Moon
44		Moon	145	Sun	
45	Sun		150	Sun	Moon
50		Moon	151	Sun	
51	Sun		156	Sun	Moon
56	Sun	Moon	162	Sun	Moon
57	Sun		168	Sun	
62	Sun	Moon	174	Sun	
63	Sun		179		Moon
68	Sun	Moon	180	Sun	
74	Sun	Moon	185		Moon
80	Sun		186	Sun	
85		Moon	191	Sun	Moon
86	Sun		192	Sun	
91		Moon	197	Sun	Moon
92	Sun		203	Sun	Moon
97		Moon	209	Sun	
98	Sun		215	Sun	
103	Sun	Moon	220		Moon
			221	Sun	

TABLE XVIII
Mean Motion of the Moon & Node

Julian Years	Diadix S. o. 1 11 4.19.30.18	Signs, S.	Degree, o.	Firsts, 1	Seconds, 11
1		5	11	56	33
2		10	10	39	19
3		3	9	22	5
4		8	8	4	51
5		1	20	1	24
6		6	18	44	10
7		11	17	26	57
8		4	16	9	42
9		9	28	6	16
10		2	26	49	3
11		7	25	31	50
12		0	24	14	36
13		6	6	11	8
14		11	4	53	55
15		4	3	36	41
16		9	2	19	28
17		2	14	10	1
18		7	12	58	47
19		0	11	43	34
20		5	10	24	20
40		10	20	48	41
60		4	1	13	1
80		9	11	37	22
100		2	22	1	42
200		5	14	3	23
300		8	6	5	5
400		10	28	6	47
500		1	20	8	28
600		4	12	10	10
700		7	4	11	52
800		9	26	13	33
900		0	18	15	15
1000		3	10	16	57
2000		6	20	33	54
3000		10	0	50	51
4000		1	11	7	48
5000		4	21	24	45
6000		8	1	41	42
7000		11	11	58	39
8000		2	22	15	36

TABLE XIX

Mean Motion of the
Moon & Node
For Months.

Common Year	S.	o.	'	"
January	1	20	6	36
February	2	0	31	53
March	3	20	38	30
April	4	27	31	20
May	6	17	37	54
June	7	24	30	45
July	9	14	37	20
August	11	4	43	55
September	0	11	36	44
October	2	1	43	20
November	3	8	36	11
December	4	28	42	47
Leap Year	S.	o.	'	"
January	1	20	6	36
February	2	13	45	39
March	4	3	52	16
April	5	10	45	6
May	7	0	51	40
June	8	7	44	31
July	9	27	51	6
August	11	17	57	41
September	0	24	50	30
October	2	14	57	6
November	3	21	49	57
December	5	11	56	33

TABLE XX

Mean Motion of the
Moon & Node
For Days.

Days	S.	o.	'	"
1	0	13	13	46
2	0	26	27	31
3	1	9	41	17
4	1	22	55	3
5	2	6	8	48
6	2	19	22	34
7	3	2	36	19
8	3	15	50	5
9	3	29	3	51
10	4	12	17	36
11	4	25	31	22
12	5	8	45	8
13	5	21	58	53
14	6	5	12	39
15	6	18	26	25
16	7	1	40	10
17	7	14	53	56
18	7	28	7	41
19	8	11	21	27
20	8	24	35	13
21	9	7	48	58
22	9	21	2	44
23	10	4	16	30
24	10	17	30	15
25	11	0	44	1
26	11	13	57	47
27	11	27	11	32
28	0	10	25	18
29	0	23	39	4
30	1	6	52	50
31	1	20	6	36

TABLE XXI

Mean Motion of the Moon & Node
for Hours, Minutes, & Seconds.

Hours	0	'	"	Hours	0	'	"
Minutes	'	"	'''	Minutes	'	"	'''
Seconds	"	'''	'''	Seconds	"	'''	'''
1	0	33	4	31	17	5	16
2	1	6	9	32	17	38	21
3	1	39	13	33	18	11	25
4	2	12	18	34	18	44	29
5	2	45	22	35	19	17	33
6	3	18	27	36	19	50	38
7	3	51	31	37	20	23	42
8	4	24	36	38	20	56	47
9	4	57	40	39	21	29	51
10	5	30	44	40	22	2	56
11	6	3	48	41	22	36	0
12	6	36	53	42	23	9	5
13	7	9	57	43	23	42	9
14	7	43	1	44	24	15	14
15	8	16	6	45	24	48	18
16	8	49	10	46	25	21	23
17	9	22	15	47	25	54	27
18	9	55	19	48	26	27	32
19	10	28	24	49	27	0	36
20	11	1	28	50	27	33	41
21	11	34	33	51	28	6	45
22	12	7	37	52	28	39	50
23	12	40	42	53	29	12	53
24	13	13	46	54	29	45	57
25	13	46	51	55	30	19	1
26	14	19	55	56	30	52	6
27	14	52	58	57	31	25	10
28	15	26	3	58	31	58	14
29	15	59	7	59	32	31	19
30	16	32	12	60	33	4	23

TABLE XXII

Eclipses of the Sun happen when at the Time of New Moon the Mean Motion of the Moon and Node are as under.

	S.	O.	'		S.	O.	'
<i>Eclips'd from</i>	0	0	0	<i>to</i>	0	12	
<i>Non Eclips'd from</i>	0	12	0	<i>to</i>	5	18	
<i>Eclips'd from</i>	5	18	0	<i>to</i>	6	12	
<i>Non Eclips'd from</i>	6	12	0	<i>to</i>	11	18	
<i>Eclips'd from</i>	11	18	0	<i>to</i>	0	0	0

Eclipses of the Moon

happen when at the Time of Full Moon the Mean Motions of the Moon and Node are as under.

	S.	O.	'		S.	O.	'
<i>Eclips'd from</i>	0	0	0	<i>to</i>	0	17	30
<i>Non Eclips'd from</i>	0	17	30	<i>to</i>	5	12	30
<i>Eclips'd from</i>	5	12	30	<i>to</i>	6	17	30
<i>Non Eclips'd from</i>	6	17	30	<i>to</i>	11	12	30
<i>Eclips'd from</i>	11	12	30	<i>to</i>	0	0	0

TABLE XXIII
Of Sidereal Years.

Sidereal Years	Days	Hour	Min	Sec.	Th.
1	365	6	9	14	30
2	730	12	18	29	
3	1095	18	27	43	30
4	1461	0	36	38	
5	1826	6	46	12	30
6	2191	12	55	27	
7	2556	19	4	41	30
8	2922	1	13	56	
9	3287	7	23	10	30
10	3652	13	32	25	
20	7305	3	4	50	
30	10957	16	37	15	
40	14610	6	9	40	
50	18262	19	42	5	
60	21915	9	14	30	
70	25567	22	46	55	
80	29220	12	19	20	
90	32873	1	51	45	
100	36525	15	24	10	
200	73051	6	48	20	
300	109576	22	12	30	
400	146102	13	36	40	
500	182628	5	0	50	
600	219153	20	25	0	
700	255679	11	49	10	
800	292205	3	13	20	
900	328730	18	37	30	
1000	365256	10	1	40	
2000	730512	20	3	20	
3000	1095769	6	5	0	
4000	1461025	16	6	40	
5000	1826282	2	8	20	
6000	2191538	12	10	0	
7000	2556794	22	11	40	
8000	2922051	8	13	20	
9000	3287307	18	15	0	
10000	3652564	4	16	40	

TABLE XXIV
The Precession of the Equinoxes

<i>Years</i>	<i>Days</i>	<i>Hours</i>	<i>Min.</i>	<i>Sec.^{ds}</i>	<i>Third^s</i>
1	0	0	20	17	30
2	0	0	40	35	0
3	0	1	0	52	30
4	0	1	21	10	
5	0	1	41	27	30
6	0	2	1	45	0
7	0	2	22	2	30
8	0	2	42	20	0
9	0	3	2	37	30
10	0	3	22	55	
20	0	6	45	50	
30	0	10	8	45	
40	0	13	31	40	
50	0	16	54	35	
60	0	20	17	30	
70	0	23	40	25	
80	1	3	3	20	
90	1	6	26	15	
100	1	9	49	10	
200	2	19	38	20	
300	4	5	27	30	
400	5	15	16	40	
500	7	1	5	50	
600	8	10	55		
700	9	20	44	10	
800	11	6	33	20	
900	12	16	22	30	
1000	14	2	11	40	
2000	28	4	23	20	
3000	42	6	35		
4000	56	8	46	40	
5000	70	10	58	20	
6000	84	13	10	0	
7000	98	15	21	40	
8000	112	17	33	20	
9000	126	19	45	0	
10000	140	21	50	40	

MUSEUM
BRITAN
NICVM



